

62
32

GENERAL LIBRARY
S. 1913

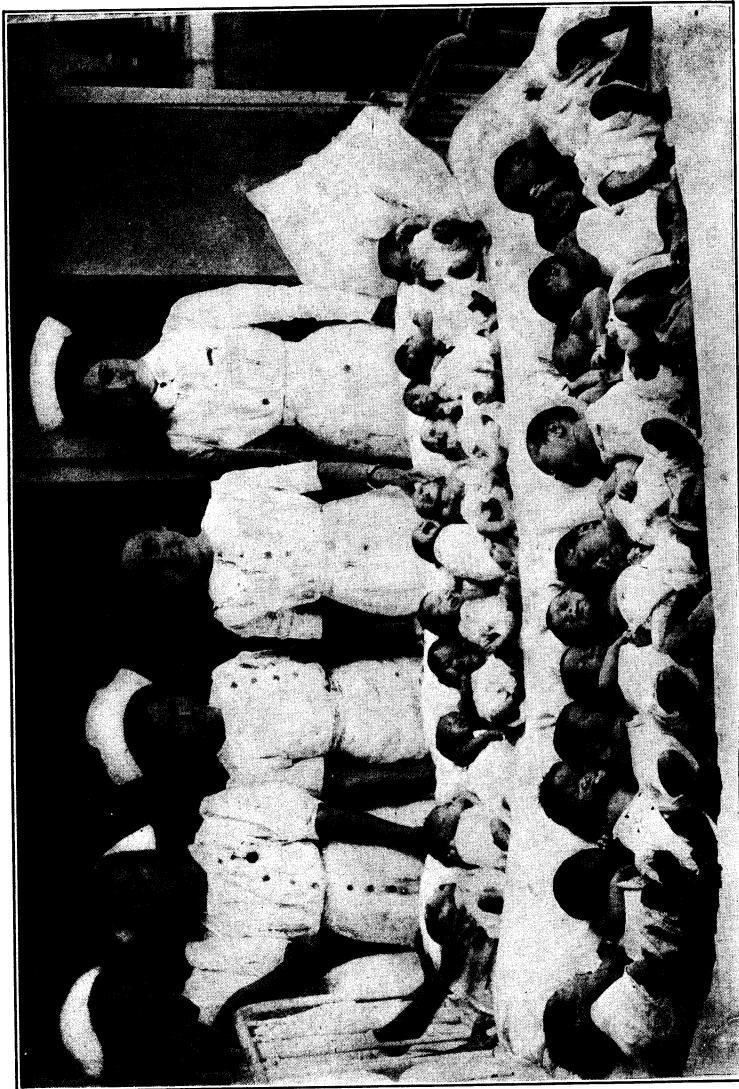
ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR

FOR THE
FISCAL YEAR ENDED JUNE 30, 1913

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF THE INTERIOR



MANILA
BUREAU OF PRINTING
1913



SAVING THE BABIES.

A photograph taken in the ward for native women in the Philippine General Hospital.

Philippine Islands. Dept of the interior.

ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR

FOR THE
FISCAL YEAR ENDED JUNE 30, 1913

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF THE INTERIOR



MANILA
BUREAU OF PRINTING
1913

121775

C O N T E N T S .

	Page.
Work for the non-Christian tribes.....	7
Failure to secure antislavery legislation.....	8
Misconduct of an official	10
The difficulty of providing lands for partially civilized members of non-Christian tribes	11
The situation reviewed by provinces and subprovinces—	
Nueva Vizcaya	12
The Mountain Province.....	13
Ifugao	13
Bontoc	14
Kalinga	16
Apayao	17
Lepanto	17
Amburayan	17
Benguet	18
Mindoro	18
Palawan	19
Agusan	21
Recommendations relative to work for non-Christian tribes.....	24
Bureau of Health	29
Low death rate among Government employees.....	29
Health a purchasable commodity.....	29
Publicity work	30
Treatment of leprosy	30
Regulation of Manila dance halls	30
Lantern exhibitions	31
Sanitary improvement of Iloilo	31
The Manila milk supply	32
The Southern Islands Hospital	32
Improvement in the Manila free obstetrical service.....	32
Food and drugs inspection	32
Rice polishings or tiqui tiqui.....	33
The school lunch system	33
Instruction of sanitary inspectors for wild tribes.....	34
Ambulance service	34
Injunction against the Director of Health dissolved.....	35
Increased use of milk	35
Antimosquito work	35
Sterilized water for public eating places.....	35
Manila public markets	36
Markets in the provinces.....	36
Conditions in Butuan and Bukidnon	36
Sibul Springs	37
Simple remedies packages	37

	Page.
Bureau of Health—Continued.	
Use of distilled water in Manila discontinued.....	87
The Antipolo pilgrimage	87
New method of collecting garbage and refuse.....	88
The filling of lowlands with street sweepings.....	88
Duties of the Bureau of Health.....	88
Hospital administration	89
Regulations for the Philippine General Hospital.....	89
The relationship between the Philippine General Hospital and the College of Medicine and Surgery of the University of the Philippines	89
Public laundries	44
Artesian wells	44
The Philippine Training School for Nurses	44
The fly menace	45
Work of the Manila free dispensaries.....	45
Water and hand borne diseases.....	46
Home pasteurization of milk.....	46
Medical inspection of Manila schools.....	46
Infant mortality	47
Tuberculosis	48
Need of a new crematory.....	49
Decrease in the Manila death rate.....	49
Relief for sufferers from typhoons.....	50
The high cost of meat in Manila.....	50
Health conditions at Baguio.....	51
Disposal of excreta	51
Sanitary conditions at the Iwahig penal colony.....	51
A tuberculosis hospital at Iwahig needed.....	51
Bacillary dysentery	52
Diphtheria	52
Insanity	52
Leprosy	53
Work of the sisters of St. Paul de Chartres.....	53
Malarial fever	54
Smallpox	54
Varioloid	54
Finances	54
Bureau of Quarantine Service	57
Measles	57
Bubonic plague	57
Ship sanitation	58
Buildings and equipment	59
Bureau of Forestry	59
Efforts to secure remedial legislation.....	59
Filipino forest employees	60
Forest concessions	60
Proposed northern Negros Forest Reserve.....	61
Atimonan Forest Reserve.....	61
The proposed Salinas Forest Reserve.....	62
Licenses	62
Communal forests	62

	Page.
Bureau of Forestry—Continued.	
Caiñgins	63
Study of mangrove swamps.....	64
Investigation of nipa swamps.....	64
Reforestation	65
Lack of sufficient bureau transportation.....	65
Forest reconnaissances	65
Inadequacy of the field force.....	66
Bureau of Science	66
Choice of a Director.....	66
The biological laboratory	67
Locust exterminating bacterium	68
Serums and vaccines	68
Rabies	69
Botany	69
Entomology	69
Fisheries	70
Chemistry	71
Cement testing	71
The testing of road materials.....	72
Abstract research problems	72
Assay work	73
Private demand for services of geologists.....	73
Library	73
Photographs	73
Cuts	74
Reserve stock of the Philippine Journal of Science.....	74
Use of the library	74
Power plant	74
Producer gas plant	75
Publication	75
Weather Bureau	76
Changes in personnel.....	76
Work of the central observatory.....	76
Seismic department	77
Payment for certain overtime work recommended.....	78
Bureau of Lands	78
Friar lands	78
Table showing results of work accomplished on friar land estates during the year as compared with the previous year	79
Tables showing work accomplished on friar land estates.....	81-83
Administrative expenses on estates.....	84
Sale of estates	84
Delinquencies	85
Table showing present status of suits for nonpayment of rents and installments of purchase price.....	86
Registration of estates.....	86
New purchases of friar lands.....	86
Friar land loans.....	87
Table showing purposes for which friar land loans were made	87

	Page.
Bureau of Lands—Continued.	
Outlook for the coming year.....	87
The San Lazaro estate	87
Public lands	88
Table showing comparison of applications for and areas of public land for fiscal years 1912-1913.....	88
Homesteads	88
Tables giving details of homesteads, sales, and leases.....	90-96
Free patents	97
New legislation	97
Important court decision	98
Table showing status of free patent applications.....	99
Town sites	100
Table showing town sites and areas thereof under Public Land Act	100
Unperfected titles	100
Statement of action of Bureau of Lands in Court of Land Registration cases	100
Compulsory registration	101
Reservations other than town sites.....	101
Table showing reservations other than town sites for the fiscal year	101
Table showing purpose and area of all reservations other than town sites made during the fiscal year.....	102
Table showing character and extent of all reservations made prior to July 1, 1913.....	102
Foreshore and lands under water.....	102
Manila reclamation area No. 1.....	103
Lands forfeited to the Government for nonpayment of taxes.....	103
Tables showing in detail the facts as to the registration of mining claims	104-106
Surveying and drafting	107
The Cadastral Act	107
Provincial road surveys	108
Table showing provincial road surveys to date.....	108
Municipal and street surveys.....	108
Inadequacy of Bureau of Lands quarters.....	108
Method of obtaining annual reports of Bureau chiefs of the Depart- ment of the Interior	109

ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS,
DEPARTMENT OF THE INTERIOR,
Manila, September 15, 1913.

GENTLEMEN: I have the honor to present the twelfth annual report of the operations of the Department of the Interior, which, except in certain instances clearly set forth, covers the year ended June 30, 1913.

WORK FOR THE NON-CHRISTIAN TRIBES.

The success or failure of work for the people of any given non-Christian tribe depends to a very large degree upon the personality of the man in immediate charge of it. The more primitive peoples of the Philippine Islands know little of laws and still less of governmental policies, but they understand individuals; and when a man who, through long years of just and considerate treatment, has won their good will leaves them for whatsoever cause, the immediate results are likely to be unfortunate. It is only after several such changes have occurred without any departure from a policy of protection and helpfulness that they begin to understand that they are safe even if old and trusted friends leave the service. For this reason especial importance attaches to the fact that on December 31, 1912, Gov. William F. Pack of the Mountain Province resigned his office in order properly to look after private interests in the Isle of Pines. He entered the special Government service on November 15, 1901, as governor of the Province of Benguet, now a subprovince of the Mountain Province, and served continuously until the date above mentioned, having been promoted to the governorship of the Mountain Province on March 15, 1909. No other Philippine provincial governor has held office for anything like so long a period since the American occupation.

Governor Pack was a man of original ideas. He was a tireless worker. He uncomplainingly endured endless fatigue, bore many other hardships, and faced grave danger on numerous occasions. I feel greatly indebted to him for practical suggestions

which have been most useful in shaping policies, as well as for his unswerving loyalty in carrying out policies when once decided upon. His resignation was a great loss to the special provincial government service.

The service sustained another very serious loss in the resignation of Lieut. Gov. Jeff D. Gallman of the subprovince of Ifugao, to whose personal efforts the extraordinary success of the work which has been carried on for the Ifugaos was very largely due.

The vacancy left by the resignation of Governor Pack was filled by the promotion of Mr. E. A. Eckman, lieutenant-governor of Benguet. That caused by the resignation of Lieutenant-Governor Gallman was filled by the transfer of Capt. O. A. Tomlinson, P. C., acting governor of Nueva Vizcaya.

The governorship of Nueva Vizcaya thus left vacant was filled by the appointment of Mr. Leo J. Grove, whose experience while an employee of the Bureau of Education had especially fitted him for the position.

The failing health of Governor Evans of Palawan has made it necessary to transfer him to the subprovince of Benguet, where he is temporarily taking the place of Lieutenant-Governor Detrick, who had been promoted to the position vacated by Governor Eckman. Mr. Detrick is serving temporarily as acting governor of Palawan during the enforced absence of Governor Evans.

Mr. Eugene de Mitkiewicz was appointed lieutenant-governor of Amburayan upon the promotion of Mr. Detrick to Benguet.

FAILURE TO SECURE ANTISLAVERY LEGISLATION.

During the last session of the Legislature a final effort was made by the Philippine Commission to secure legislation prohibiting and penalizing slavery, involuntary servitude, peonage, and the sale or purchase of human beings in the Philippine Islands. On October 24, 1912, that body passed an act designed to accomplish this end. It was tabled by the Philippine Assembly on January 8, 1913, without discussion.

I subsequently prepared a report on slavery and peonage in the Philippine Islands for the purpose of demonstrating clearly the existence of these evils in this country. In this report I recommended that the need of legislation be brought to the attention of the Congress of the United States because of the long continued refusal of the Philippine Assembly even seriously to consider any of the several laws dealing with these subjects passed by the Commission.

On May 17, 1913, the Commission adopted the following resolution:

Whereas the Act of Congress passed July 1, 1902, "temporarily to provide for the administration of the affairs of civil government of the Philippine Islands and for other purposes" provides that "neither slavery nor involuntary servitude except as a punishment for crime whereof the parties shall have been duly convicted shall exist in said Islands;" and

Whereas the Supreme Court of the Philippine Islands in the case of the United States *vs.* Cabanag (8 Phil. Rep., 64), decided on March 16, 1907, that "there is no law applicable here, either of the United States or of the Archipelago, punishing slavery as a crime;" and

Whereas, in order to remedy this condition and in accordance with the above-mentioned provisions of the said Act of Congress, the Philippine Commission in its exclusive legislative jurisdiction over all that part of the Philippine Islands inhabited by Moros or other non-Christian tribes passed Act No. 2071, and as a branch of the Philippine Legislature has, in four successive sessions, passed a bill prohibiting and penalizing slavery, involuntary servitude, peonage, or the sale of human beings; and

Whereas during each of said sessions the Assembly has failed to concur in the passage of such Act: Now, therefore, be it

Resolved, That the Governor-General be requested to send to the Secretary of War a copy of the proposed law entitled "An Act prohibiting slavery, involuntary servitude, peonage, and the sale or purchase of human beings in the Philippine Islands and providing punishment therefor," as passed by the Commission in the first session of the Third Legislature, but which failed of passage in the Assembly, with the recommendation that a copy of the proposed law be sent to Congress with the request that the necessary legislation be enacted to render fully effective the above-mentioned provisions of the Act of Congress of July first, nineteen hundred and two.

My report and other pertinent matter have been transmitted to the Secretary of War so that Congress will now have some, at least, of the facts before it and can decide whether or not it wishes to give effect to that provision of its Act of July 1, 1902, which provides:

That neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist in said Islands.

Meanwhile it continues to be true that slavery and peonage are both prohibited and penalized in the provinces under the exclusive legislative jurisdiction of the Commission, to wit, the Moro Province, the Mountain Province, Agusan, and Nueva Vizcaya, while they are not penalized in the remaining thirty-four provinces of the Philippines. The following recent case illustrates the embarrassment which results.

A Bukidnon man was held for a number of years by one Racines for debt. He was badly treated and at the suggestion

of another Filipino set the house of his master on fire in order to revenge himself. He was then tried and sentenced to Bilibid Prison where he now is. He left two sons. Quite recently they were summoned to the house of Racines by a messenger, were then seized, and were informed that as their father had not finished working out his debt they must do so. They were held as slaves until rescued by Maj. John Fawcett, P. C., on January 10, 1913. On complaint of Albino Noble, assistant to the lieutenant-governor of Bukidnon, Racines was prosecuted in the Court of First Instance for slave keeping, the charge specifying:

That on a day of the month of September, 1912, in the town of Lumbia, in the subprovince of Bukidnon, Province of Agusan, Philippine Islands, the accused, Lorencio Racines, illegally and criminally seized two Monteses (Bukidnons), minor children, called Ramon Pitoy and Toto Pitoy, and kept them working on his land without any compensation and against their will, thus violating the law.

The provincial fiscal made the following motion:

Now comes the provincial fiscal in the above-entitled case and prays for the dismissal of this cause. The house in which Ramon Pitoy and Toto Pitoy were held in slavery by defendant is and was within the jurisdiction of the Province of Misamis to which Act No. 2071 is not applicable; hence this motion of dismissal with costs taxed de oficio,

and the case was dismissed, it having been shown by a special survey that the house of the accused was 100 yards over the boundary line, although most of his land was in the subprovince of Bukidnon. A condition such that it is necessary for the Bureau of Lands to run a survey in order to determine whether or not a slaveholder shall be punished leaves much to be desired.

MISCONDUCT OF AN OFFICIAL.

The foundation of the whole policy of the Department of the Interior in its management of the non-Christian tribes of the Philippines is the just and humane treatment of the weakest, most ignorant, and most defenseless savages.

On April 30, 1913, Col. John B. Bennet, P. C., verbally reported to me that on April 24, he had found in the Constabulary barracks at Cervantes an Igorot prisoner tied by his raised hands in such a manner that his heels did not touch the floor, so that he was suffering severe bodily pain. The corporal who had tied the man in this position stated that he had done so by verbal order of the lieutenant-governor, Mr. W. A. Miller. As my annual inspection trip through this subprovince was to be made a few days later, I took no action until I could look

into the facts on the ground. Lieutenant-Governor Miller emphatically denied having ordered the man tied in such fashion or otherwise made to suffer pain. The Igorot himself testified that when Lieutenant-Governor Miller had entered the barracks and seen him tied up he had immediately ordered him cut down, but as Miller denied having even known of the infliction of the torture prior to the time when informed of it by Colonel Bennet, this testimony did not exculpate him. He admitted having given an order to have this man taken out and shot when he turned him over to the Constabulary corporal, and having arranged to have a shot fired shortly after he had been taken out, his object being to terrorize a prisoner charged with robbery from whom he wished to extract a confession.

This latter act alone afforded sufficient ground for Miller's immediate separation from the service and I therefore brought the matter to the attention of the Governor-General. After making personal investigation he removed Miller and directed an officer specially detailed from the Bureau of Justice to determine whether the evidence was sufficient to justify a criminal prosecution. The decision reached was that prosecution was warranted. Lieutenant-Governor Miller's conduct in this matter was without precedent, justification, or excuse, and if he was actually guilty of ordering this man tortured in order to extract information from him it is to be hoped that the penalty imposed will be such as effectively to deter any officer or employee of any provincial government from committing such a crime in future.

THE DIFFICULTY OF PROVIDING LANDS FOR PARTIALLY CIVILIZED MEMBERS OF NON-CHRISTIAN TRIBES.

When members of non-Christian tribes are persuaded to give up nomadic habits and permanently to settle on lands which it is desired that they should be allowed to cultivate, the question of conveying to them title to such lands is one which presents serious difficulties. The seminomadic habits of many of these tribes are largely due to the fact that as soon as they have cleared land and brought it under cultivation they are driven from it by false claims of ownership on the part of their civilized neighbors. They are often willing enough to work if assured that they will not be deprived of the fruits of their labors. Most of them are at the outset absolutely without means. They do not, as a rule, wish to rent land, but desire to secure a title in fee simple so that they can never be dispossessed. They have not sufficient money with which to purchase, nor do they need anything like the 40 acres each which are obtainable under homestead

applications. After a good deal of consideration I have decided upon the following procedure to meet this difficulty in a number of cases: Request the Governor-General to reserve land as a town site for members of the tribe in question only; subdivide the town site into small lots in accordance with the provisions of chapter 6 of the Public Land Act, thus excluding from ownership or occupancy of these lots any persons other than members of the tribe; sell the lots, subject to the condition of occupancy and cultivation, at the pro rata charge for a homestead, namely, ₱1.25 per hectare. Few wild men can, with the assistance of their families, cultivate more than 1 or 2 hectares of land, and those persons who are without means to pay the very small charge necessary to gain title to the tracts obtainable under such conditions can be assisted by providing them with opportunity to labor on public works within the town sites. Many of the wild men set great store by documents of whatsoever sort, and ability to give a man a "papelito" (little paper) setting forth the fact that he is the owner of a tract of land upon which he had entered and which he is cultivating will be a very powerful influence in inducing others to leave their mountain homes and to enter upon a more peaceful and orderly life. It is purposed to give this plan a trial on the reservation of the Tagbanuas at Aborlan, in the Island of Palawan, and, if it proves successful, to apply it elsewhere.

NUEVA VIZCAYA.

The progress made in road and trail construction has been most satisfactory, and the methods employed in the maintenance of existing roads and trails have left little to be desired. By January or February, 1914, dirt work on the new road to the Isabela border should be finished, and as soon as the corresponding road in Isabela is completed to the boundary, Nueva Vizcaya will at last have a good outlet for its rice, which is so greatly needed in the former province. More than half of this road is already surfaced. The remainder can be surfaced little by little as funds become available, but until this is done its use for wheeled transportation should be prohibited during the height of the rainy season, otherwise it will be badly cut up. During the greater part of the year, however, wheeled transportation can be used throughout its entire extent.

The province has acquired a jet-well drilling outfit, and as a result of its use the more important towns are rapidly being supplied with good water for domestic purposes.

A primitive little hospital established by Doctor Vinluan, the district health officer, in which Army cots and other simple

furnishings have been utilized, is doing great good at very small cost. The excellent service rendered by the one Filipina trained nurse employed by the institution, Miss Juana Villacorta, is such as to convince me more strongly than ever that the services of the young Filipina women who are being educated as nurses at the Philippine General Hospital as well as at various private hospitals in the city of Manila will be invaluable in the provincial towns. I think that the Legislature, at its next session, should seriously consider whether it cannot and ought not materially to increase the funds available for the training of young women in this most important profession.

There has been no disorder of note in Nueva Vizcaya during the year and conditions among the peculiarly wild and primitive Ilongot and Negrito inhabitants steadily improve. Capt. Wilfrid Turnbull, P. C., who has charge of the work for the Ilongots and Negritos on the Pacific slope of the eastern mountain range of this province, has succeeded in establishing and holding together two flourishing Negrito villages, a thing which, so far as I am aware, has never before been done. Captain Turnbull has lived with his Negritos and Ilongots throughout the year. Whether the villages which he has built up can be brought to such a state of development that they will not disintegrate if their inhabitants are not under the immediate control of a white man remains to be seen, but the results to date are certainly encouraging and Captain Turnbull is entitled to great credit for the self-sacrifice which has led him to devote himself with such singleness of purpose to the betterment of conditions among the simple peoples whom he serves.

THE MOUNTAIN PROVINCE.

In spite of the resignations of Gov. William F. Pack and Lieut. Gov. Jeff D. Gallman the work of the Mountain Province has progressed steadily during the year.

At the provincial capital a large addition to the provincial building affording much needed office and storage space has been completed, as have a supervisor's house and a nurses' home. The water system has been extended and sanitary plumbing has been installed. The town has been improved in various ways and is now an attractive place.

IFUGAO.

The resignation of Lieut. Gov. Jeff D. Gallman, followed by the appointment of Capt. O. A. Tomlinson, P. C., to the position thus left vacant, did not involve any serious interruption

in the work of this subprovince. Captain Tomlinson had previously served as its lieutenant-governor during the absence of Lieutenant-Governor Gallman on leave, was acquainted with all the Ifugao chiefs, and was thoroughly familiar with the details of the work.

A very large amount of public improvement labor is available annually in Ifugao. A number of important irrigation ditches were constructed and substantial additions to, and improvements in, the trail system were made. Of the latter the most noteworthy are the trail along the side of Santo Domingo Mountain, which saves the necessity for crossing its summit and thus makes it possible to avoid a large amount of heavy climbing, and the Mayoyao-Natonin Trail, which reduces the time required to make the horseback journey between these two places from five days to one.

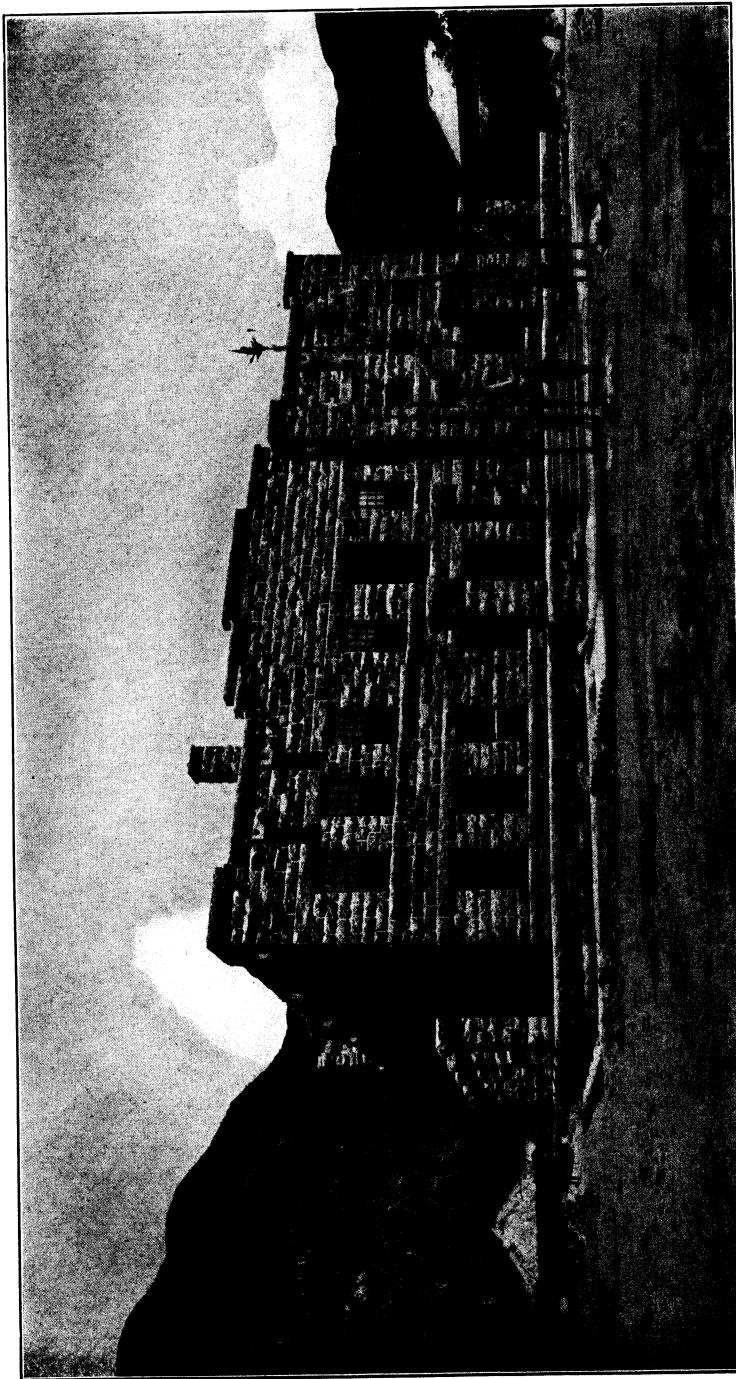
The Ifugao schoolboys of Quiangan, the subprovincial capital, have added to the extraordinary record they had previously made in building a stone schoolhouse by nearly completing a splendid stone subprovincial office building. This structure would be an ornament to any city and it is almost incredible that such urchins, aided only by a single foreman, should have erected it.

The spirit displayed by the Ifugaos during the year could not have been better and the state of public order has been excellent throughout the subprovince.

BONTOC.

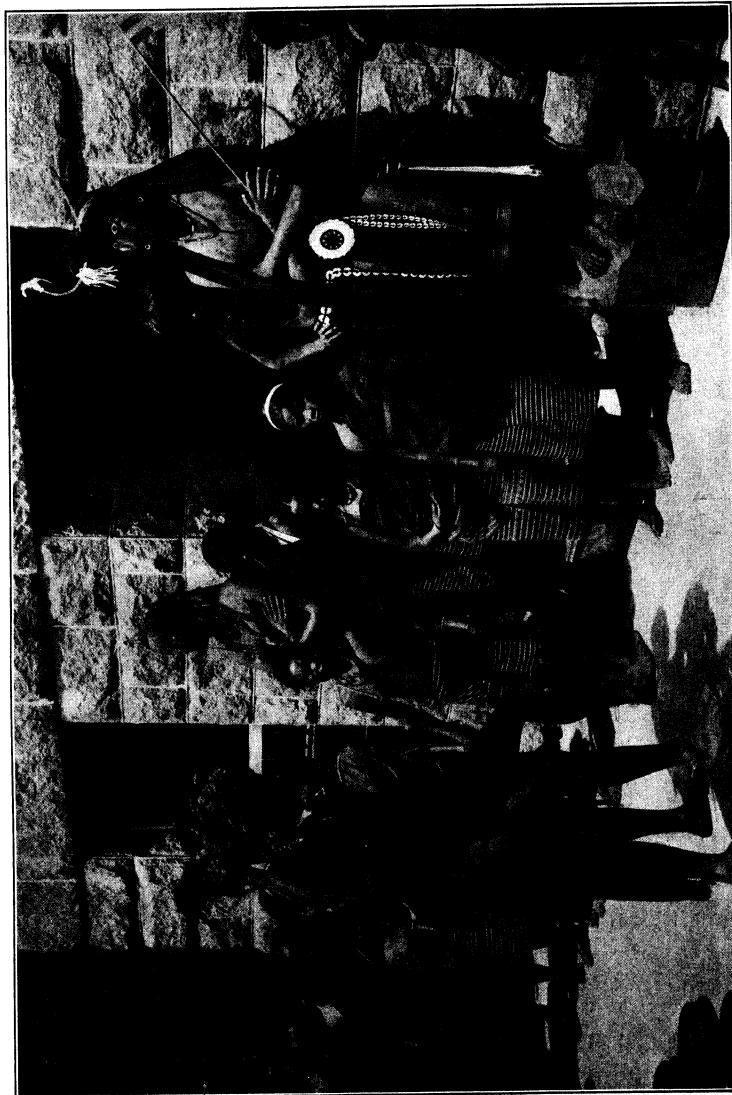
Lieut. Gov. Samuel E. Kane has succeeded in bringing about better conditions in this subprovince than have ever previously existed there. The new buildings at the provincial capital heretofore referred to were constructed under his immediate supervision. Water and sewerage have been supplied to the more important buildings. A new structure has been erected for the accommodation of the provincial exchange and one-fourth of the work upon a new market, where the people of each important settlement will find a home when they come in with their wares, has been completed.

The trail between Bontoc and Lubuagan, the capital of the subprovince of Kalinga, was the worst in the Mountain Province. Lubuagan is about 400 feet lower than is Bontoc, but in order to get there over the old trail one had to climb 18,000 feet and to descend 18,400. A line has been staked for a trail which will follow the Rio Chico Valley until a point immediately below



A NEW SUBPROVINCIAL BUILDING AT QUANGAN.

This building was not quite completed when photographed. All the work on it was done by Ifugao schoolboys, including splitting the stone, cutting it to dimensions, facing it, burning the lime, and mixing the mortar.



DEDICATING THE NEW SUBPROVINCIAL BUILDING AT QUANGAN.

The two wooden figures, carved by an Ifugao artist, are the guardians of the building.

Lubuagan is reached. The grade throughout this entire distance will be almost level. Approximately half of this trail has already been completed and it will probably be finished during the coming year. It is in every way a most creditable piece of work and will decrease by about one-half the time needed comfortably to make the ride between the two towns.

Work on this trail has been delayed for years because it was necessary for it to pass through rice terraces of the Igorots on leaving Bontoc and they strenuously objected to this. The Igorots are superstitious about their rice fields, and it was not deemed right to disregard their wishes. Lieutenant-Governor Kane, however, hit upon an admirable plan which worked to the satisfaction of all concerned. Below the town of Bontoc there was an extensive piece of rich agricultural ground of comparatively little value for growing rice, as the only way the Igorots had of getting water onto it was to build a dry stone dam across the Rio Chico. Whenever a heavy shower fell this dam would wash out. It was sometimes necessary to rebuild it as many as three or four times within a year, while, if the washout occurred at a critical time, the crop was lost before the dam could be rebuilt. Furthermore, the dam could not be made high enough to make it possible to place all of the ground in question under irrigation.

A new irrigation ditch was built from a point high up on the Rio Chico where an intake could be blasted out of solid rock. In order to construct this ditch it was necessary to tunnel through a number of bluffs. The Igorots were at first very positive that this could not be done, especially as tunneling was begun from the opposite sides of the largest bluff at one time. When the working parties got near enough to hear each other there was great excitement and when they finally came together the delight of these simple workmen knew no bounds. The men whose rice terraces would be interfered with by the new trail willingly accepted the much better land and surer water supply thus made available for them, and not only was all hard feeling avoided but the people of Bontoc sent a special delegation to call upon me upon the occasion of my annual inspection of that place and to express their very warm thanks for the assistance which had been rendered them.

Road and trail work has now progressed so far in the Mountain Province that it will be possible each year to do an increasing amount of irrigation ditch construction and to give more attention to the supplying of the towns with adequate

supplies of sanitary water for domestic purposes. Such improvements are very highly appreciated by Igorots, Kalingas, and Ifugaos.

There have been several comparatively unimportant disturbances of public order during the year. A boy from Bontoc used his head ax on a boy from Tucucan for no apparent reason, cutting him severely. The Tucucan people at once armed themselves and attempted to raid the town of Bontoc. The Bontoc people, in accordance with the orders of the lieutenant-governor, neither armed themselves nor left their homes. The Tucucan war party was intercepted in the outskirts of Bontoc by the lieutenant-governor and a Constabulary officer and its members were disarmed and sent about their business. As soon as they had had a chance to cool off they readily admitted that they indulged in hasty action.

While I was inspecting Bontoc a man of Malecon became insane, proceeded to Sadanga and killed an old woman of that place, without taking her head. He then returned to his own town and killed two men there. Meanwhile the Sadanga warriors seized their arms, followed him to Malecon and encountering an innocent man with a bloody head ax killed him and took what is called the jawbone, which in effect means that they cut off the flesh of his face with the lower jaw attached to it.

As soon as news of this untoward occurrence reached Bontoc an Igorot policeman was sent to demand the return of the jawbone, which was effected and the affair was adjusted without any fighting between the two towns.

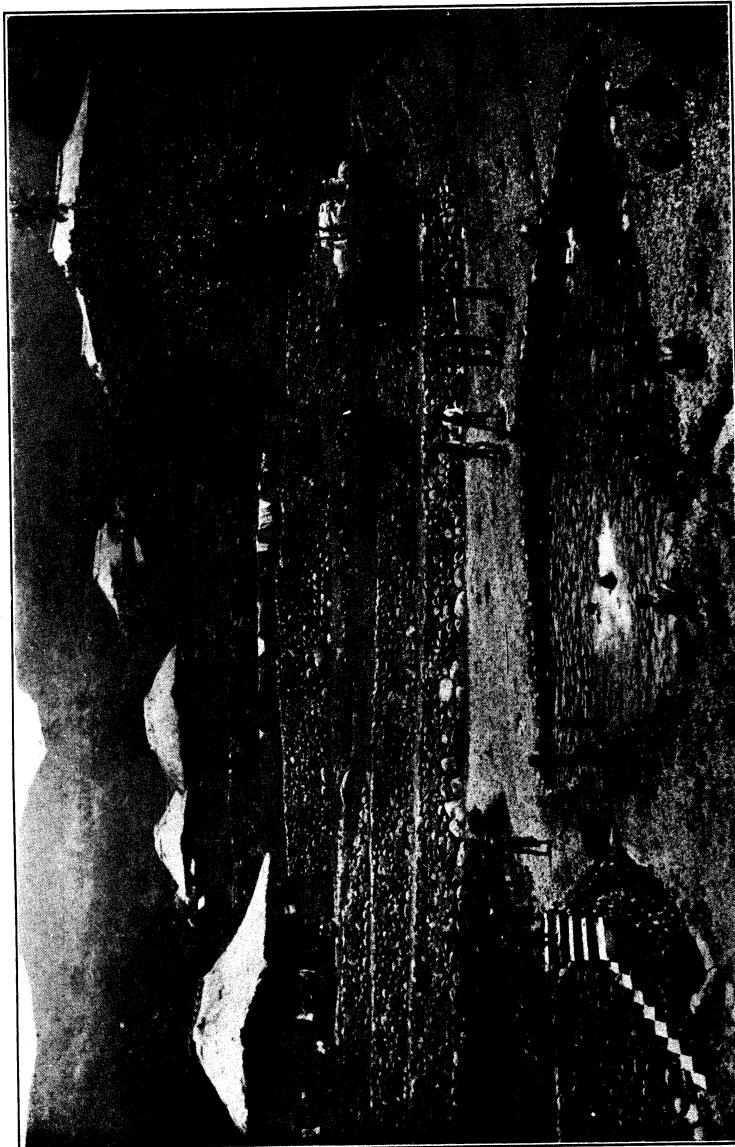
A few years since either one of these incidents would have resulted in wholesale killing.

KALINGA.

There has been no interruption in the work of this subprovince during the year and, thanks to the activity of its lieutenant-governor, Walter F. Hale, who is now the oldest lieutenant-governor in time of service in the Mountain Province, it has progressed steadily and rapidly.

The great stone swimming pool at Lubuagan recently constructed is highly appreciated by the people of that place. A new low-grade trail between Lubuagan and Bontoc has been completed to the subprovincial line, and other important road and trail work has been done.

The state of public order has remained excellent.



LUBUAGAN SWIMMING POOL.

We are trying to teach the Igorots that cleanliness is next to godliness. This recently constructed swimming pool, some 10 feet in depth, is full of men and boys from daylight until dark.

APAYAO.

As stated in many of my previous annual reports, the problem presented in this subprovince is proving more difficult than that existing in any other subdivision of the Mountain Province. Lieutenant-Governor Conner has made substantial progress toward its solution during the year. Malcontents to the number of approximately 70, who have for a long time caused trouble in the immediate vicinity of the subprovincial capital, finally went on the warpath. With the active and effective assistance of the Philippine Constabulary they were promptly dealt with, and conditions in Apayao are at present better than they have been for a long time. When I inspected the subprovince, Kalingas from its extreme southern portion came to see me in the town of Magapta on the Abulug River, a thing which has never occurred before, as the Kalingas have been afraid to enter this territory.

Material progress has been made in trail construction in Apayao and a little more work will establish communication between it and the subprovince of Kalinga so that one can ride a horse from Bontoc to Tait. The time has come when the subprovincial capital should be moved to a more central point farther up the Abulug River. It was intended at the outset to occupy Tait only temporarily, but untoward circumstances have delayed the carrying out of the plans originally made. I expect that Lieutenant-Governor Conner will establish himself provisionally near the center of the subprovince in the near future.

A beginning has been made toward utilizing these people for maintaining law and order within their own territory and it is hoped that a substantial advance will be made in this matter during the coming year.

LEPANTO.

The Cervantes-Mancayan Trail has been completed, and much work has been done on other trails under construction in this subprovince. Conditions as to peace and order have left little to be desired; but on the whole, progress has hardly been what might have been expected, owing in part to the fact that prior to the time when he indulged in the misconduct hereinbefore mentioned Lieut. Gov. W. A. Miller seemed to lose interest in the work of his subprovince.

AMBURAYAN.

The great masonry wall, designed to protect Tagudin, the capital of this subprovince, from the inroads of the Amburayan River, has been completed and the town, which has suffered

severely in the past from water-borne diseases because its inhabitants obtained their drinking water from the Amburayan River, has been provided with two excellent artesian wells. A third is now being sunk, and if it is successful there will remain no excuse for sickness resulting from the drinking of infected water.

BENGUET.

Great progress has been made in grading that portion of the railway between Aringay and Baguio which lies within the sub-province of Benguet. The dirt work on this line is now 70 per cent completed. Throughout the rainy season the Igorots displayed an unanticipated willingness to work on the railroad grade, and, owing to the ingenuity of some of their headmen in the use of rain water which was caught in basins and conducted to points where excavation was going on, were able to move large quantities of earth at a cost of approximately 5 centavos per cubic meter.

The Naguilian Trail has been widened, and in places surfaced, so that small automobiles can be used on it during the dry season with reasonable comfort and safety. A number of seven-passenger cars went over it, but it is not safe as yet for such heavy traffic.

The material prosperity of the pacific and industrious Igorots of this subprovince increases annually.

When Lieut. Gov. E. A. Eckman was promoted to the governorship of the Mountain Province the Benguet people displayed a very genuine regret, giving a fiesta in his honor at which they presented him with a token of their regard in the form of a gold watch and with a watch chain and cuff links made of gold mined in Benguet.

MINDORO.

I regret that I am unable to report any very material improvement in conditions in this province during the past year except the construction of a considerable amount of new trail on the line between the provincial capital and Abra de Ilog, and the sinking of a number of comparatively shallow driven wells which has resulted in securing adequate supplies of good drinking water in a number of towns where such supplies were sorely needed.

A modern sanitary market building has been erected at Calapan, the provincial capital. The sanitary condition of the towns of Naujan and Bulalacao has materially improved and is now excellent, but this improvement is perhaps more than counter-

balanced by the backsliding of places like Pinamalayan and Caluya in which disgraceful conditions have arisen. To my regret I have become fully convinced that even in those Filipino towns where satisfactory conditions have finally been brought about as a result of years of painstaking work, the inhabitants are so little impressed with the resulting benefits that they immediately abandon all efforts to keep their towns clean the moment outside pressure is relaxed and would, if left to themselves, promptly return to the conditions from which they have been forced to emerge.

PALAWAN.

Late in the year Gov. John H. Evans of this province became ill with pulmonary tuberculosis. In the mountains of Benguet his condition improved so rapidly that he was soon fit to assume the duties of its lieutenant-governor and it was deemed best to arrange an exchange of work between him and Lieut. Gov. H. J. Detrick, who was made acting governor of Palawan.

Mr. Carrigan, assistant to the governor for work among the Moros and Tagbanuas, went to the United States on leave and is not expected to return. His place is being filled by the detail of Lieut. William G. Carter of the Philippine Scouts.

In general it may be said that conditions on the east coast of the main island of Palawan and on the small islands adjacent thereto have very materially improved during the year, while on the west coast, which is comparatively unimportant, there has been material retrogression. The effort to improve the sanitary condition of the Filipino towns and settlements actively begun a year ago has met with some success. Puerto Princesa and Cuyo are in excellent condition, while a number of other places, including Cagayancillo, have materially improved.

The Tagbanuas on the Aborlan Reservation progress rapidly and the number of families settled there increases. The industrial school operated by the Bureau of Education on this reservation is doing admirable work.

There has been no trouble among the Moros of Palawan proper, but there has been a serious outbreak among those of Balabac. Its history shows the difficulty of dealing with these people. An insignificant individual, who previously had had little influence, was detected in improper relations with the wife of one of the headmen. The latter attempted to kill him and, seriously wounded, he was forced to take to the hills. After an absence of several months he returned, stating that he had been met in the hills by little people about a foot high who had instructed him to establish a new religion. He proceeded to

carry his alleged instructions into effect, gathering about him a considerable proportion of the male Moro inhabitants of Balabac and a limited number from Palawan. These people ultimately worked themselves into a frenzy and decided among other things to kill all Christians on the island. On July 23, 1913, the place of Mr. Loudon, on Delauan Bay, was attacked, and his infant child, his Filipina wife, and five other Filipinos were murdered.

In anticipation of possible active trouble, Lieutenant Reid of the Philippine Scouts with 25 soldiers had been seasonably sent to Balabac. He left the Loudon house only about an hour before this attack. Immediately upon learning of it he went to the place where the fanatics had been holding their religious meetings and he and his men were promptly and vigorously attacked. Severe punishment was inflicted upon the fanatical Moros. An additional company of Scouts was promptly sent from Jolo by General Pershing and at this writing most of those concerned in the Dalauan Bay murders have been killed or apprehended. The remaining Moros of the island have with few exceptions lost faith in their new religion and have returned to their homes content to remain adherents of Islam, for the present at least.

At Aparauan I found that the Tagbanuas had been working for two years cutting timber for the holder of a forest concession who had never had a settlement with any of them during this period. They were supposed to be credited for their work at the rate of 16 centavos per cubic foot of timber cut. None of them knew enough to measure timber, and none of them had the slightest idea how much they had cut. All of them had received advances of rice, cloth, etc., from their employer at more or less frequent intervals. None of them knew how much they had received nor what amounts had been charged against them. In other words, they were absolutely in the hands of their employer and there was unquestionably grave reason for believing that he had no intention of dealing fairly with them. I caused his agent on the ground to be arrested and taken to the provincial capital for trial as a gambler and a user of false weights and measures.

The curse of the Province of Palawan is the lack of adequate transportation. Such conditions could not have arisen in a reasonably accessible place. The Island of Palawan is 230 nautical miles long, while the extent of the province from north to south is 360 nautical miles and from east to west 160 nautical miles. The main island lies in such a position as practically to split both

monsoons with the result that both its coasts are wind swept during the greater part of the year and navigation along them is unsafe except in vessels of considerable size.

The provincial ketch, which has auxiliary engine power, was reasonably adequate to meet the needs of the province at the outset, but should now be constantly employed in supplying the several provincial exchanges with the goods required by the Tagbanuas and Moros and in taking the products purchased from these people to market. The only additional water transportation owned by the province is one rather small open launch. A good-sized vessel could be constantly and profitably employed in making trips around the province to gather freight and in taking it to the Kudat and Manila markets. The lack of such a vessel often renders it impossible to maintain communication with the west coast and retards the development of this naturally rich region.

An American who has been cutting timber at Alfonso III for two years has never been able to ship a stick of it. Recently he threw a considerable percentage of his cut into the sea in order to have it handy for loading, believing that a vessel was coming in the immediate future. Nearly three months have since elapsed, the teredos are perforating his timber, and there is no transportation in sight.

The schooner operated by Captain Wallace, who is conducting an important lumber business on Malampaya Sound, turned turtle recently in a squall when near Manila. He did not even hear of the accident for weeks, and then only by chance.

In view of these facts and of the importance of supplying the Iwahig penal colony and the Balabac customhouse, I believe that the Legislature should seriously consider the advisability of utilizing a good-sized vessel to make the run from Manila to and around the Island of Palawan and back to Manila as frequently as possible. Such a vessel on a regular schedule would enormously facilitate the operations of the provincial officials and would greatly benefit the people of the province.

AGUSAN.

There has been no change among the more important officers of this province during the year and progress has been gratifyingly rapid and substantial. Sanitary conditions in many of the Manobo towns along the Agusan River have materially improved and in several instances now leave little to be desired. In only one case, that of Bunauan, has there been material retrogression. It followed the withdrawal and assignment to duty else-

where of Sr. Blas Baclagan, a Filipino provincial employee, under whose supervision the place had been thoroughly cleaned. Conditions have also improved in each of the three Christian municipalities of the subprovince of Butuan.

At the provincial capital an excellent and adequate provincial building has been completed. Street and drainage facilities have been materially improved and increased. The town is rapidly becoming a suitable capital for a great province.

Reasonably satisfactory sanitary conditions have been maintained at Talacogon as the result of strong and constant pressure, while Cabadbaran, which was in a state of disgusting filth a year ago, is to-day materially cleaner than the average Filipino town. The little hospital at Butuan conducted by Doctors Ampil and Garcia has done excellent work. The improvement in sanitary conditions in many of the Manobo towns is largely due to the intelligent activity of Doctor Ampil.

The business of the Manobo stores has practically doubled during the year and now amounts annually to some ₱80,000. These stores are perhaps the most important single civilizing influence at the disposal of the Government of this province. It is impossible to keep them supplied, with the water transportation at present available, and more should be immediately provided.

Governor Bryant and Capt. G. O. Fort of the Philippine Constabulary have, by their intelligent and capable handling of a difficult situation, ended a series of blood feuds which has existed for a very long time among the more warlike and less civilized Manobos, and through concerted action with the provincial authorities of Surigao have materially improved the condition of public order in the mountains along the boundary line between Surigao and Butuan.

A vicious attempt on the part of certain Filipinos to create new troubles among the primitive people of this region, who are only just now being brought under governmental control, has largely failed as the result of the timely and vigorous intervention of the Secretary of Finance and Justice and the Governor-General made at my request. Shortly after peace had been established among these people by Governors Bryant and Soriano there was an effort to bring criminal prosecution against a number of their chiefs because of crimes admittedly committed by them in the year 1901 at a time when no governmental control, either Spanish or American, had ever been established over the territory which they occupied. They were then being

guided in their actions by their own tribal customs, which recognized as proper, and even commendatory, acts which more civilized peoples deem to be criminal. Thanks to the officials above mentioned, legal proceedings were discontinued.

In dealing with the more warlike tribes of the Philippines, I have persistently followed the policy of ignoring criminal acts, if committed in accordance with tribal customs prior to the establishment of effective governmental control, and a departure from this course in the present instance would have been followed immediately by disastrous results.

The subprovince of Bukidnon has, as usual, been a storm center on account of the activities of a small vicious element of the population of the neighboring province of Misamis. Its Filipino lieutenant-governor, Sr. Manuel Fortich, was made the subject of two rather ingenious attacks, the signatures of the complainant in each case being forged, and as a result the provincial governor was compelled to waste time in an investigation which proved to be entirely uncalled for.

On the complaint of the lieutenant-Governor one Anastacio Neri was prosecuted for having accepted money from a number of Bukidnon men with the understanding that he would pay their public improvement tax, or, at all events, that they would not be called upon to pay it, and then pocketing the money. Neri was acquitted by a justice of the peace. The judge of first instance concerned has reprimanded this official, and more similar cases will now be brought against Neri.

As a result of this effort to protect his people, Lieutenant-Governor Fortich was threatened with prosecution for murder because of the shooting of escaping assassins by Constabulary soldiers under his orders in the year 1910, the plan being to get him into jail charged with an unbailable offense and keep him there as long as possible. This criminal project fell through.

My inspection of Bukidnon gave me very great pleasure. I found the neat, clean, prosperous villages surrounded by flourishing crops; the cultivated areas and the road and trail system materially extended; new villages springing up on the fertile prairies; the spirit of the people admirable. The only criticism which could be made of the work in this subprovince was that the people and the officials, in their anxiety to build more road and trail, had in some instances failed properly to maintain what had previously been constructed. Necessary steps were taken to avoid a repetition of this mistake in future.

RECOMMENDATIONS RELATIVE TO WORK FOR NON-CHRISTIAN TRIBES.

For some years past I have felt inclined to make certain general recommendations relative to legislation needed in order that work for the non-Christian tribes may be carried on more effectively, but have refrained from doing so lest I expose myself to the charge of seeking to extend my powers or to lighten my burdens as Secretary of the Interior.

Upon the eve of my retirement I feel that I may say what it seems to me ought to be said without danger of having my motives misconstrued. It will, I trust, be remembered that my recommendations are based on experience gained during eighteen years of residence in the Philippines, in the course of which I have been continually brought closely in contact with the more primitive peoples of the Archipelago. During twelve of these years I have exercised executive control over the affairs of all members of non-Christian tribes residing outside of the Moro Province.

As I have already said, the day has not yet arrived when the non-Christian peoples of the Philippines understand much about laws or governmental policies, but many of their leaders are very keen students of human nature and they understand men uncommonly well. Personal contact with them and the winning of their confidence and regard are essential to the effective exercise of control over them.

The powers conferred upon officers of the so-called special government provinces, which are inhabited largely by non-Christians, are necessarily arbitrary and are therefore liable to abuse. The immense majority of the more primitive peoples are completely illiterate, so cannot write of their troubles. Many of them are excessively timid and will not so much as speak of what they deem to be injustices if not practically persuaded to do so. These things make personal inspection and investigation by the Secretary of the Interior imperatively necessary. It would be worse than futile to attempt to control and wisely to guide the progress of the wild men of the Philippines from an office chair in Manila. The thing is impossible.

This fact has been recognized by the legislative body of the Islands, which has made it one of the official duties of the Secretary of the Interior to inspect each special government province, except the Moro Province, at least once during each fiscal year.

Inspections, if they are to be of real value, cannot be pro forma. A reasonably thorough inspection of the Mountain

Province and western Nueva Vizcaya alone involves a horseback ride of 500 to 700 miles and occupies at least six weeks. A materially longer period could be very profitably employed. In order to observe conditions in eastern Nueva Vizcaya it is necessary to make a steamer trip to the east coast of Luzon and proceed inland. At least two weeks annually should be spent in this region. Two weeks is the minimum time which a really thorough inspection of the Province of Mindoro demands, and three weeks of steady travel is the minimum requirement for a real inspection of Palawan. Three weeks should be devoted to the subprovince of Bukidnon and a similar period to the subprovince of Butuan. There remain such provinces as North and South Ilocos, Oriental and Occidental Negros, Iloilo, Capiz, and Antique, each of which has a considerable non-Christian population and ought to be inspected annually.

Personally, I am not only deeply impressed with the importance of these inspection trips, on every one of which I learn important facts which would not have come to my knowledge had I remained in Manila, but I thoroughly enjoy them and have devoted to them every moment which could be spared from other duties, giving two to four months annually to this special work. I have, indeed, frequently subjected myself to adverse criticisms because of long continued absences from Manila in the course of which important matters arose needing immediate action by the Secretary of the Interior. Yet even so, I have visited the east coast of Luzon only twice in twelve years; have never given to an inspection of Mindoro, and seldom to an inspection of Palawan, the time which I felt to be necessary; have never even visited the important part of the subprovince of Bukidnon which lies west of the Cagayan River, and have also failed to visit a number of important places in Butuan which are comparatively accessible.

Approximately half of the population of the subprovince of Abra, which is a part of South Ilocos, is made up of people of the Tingian tribe, yet I have been able to inspect it but twice in twelve years and during this entire period I have never so much as set foot in the wild man's territory in Negros or Panay. Lack of the time materially necessary to make inspection of these regions possible is my only excuse. An official charged with the protection of the public health; the administration of the public lands, the friar lands, and the public forests; and the supervision of such work as is performed by the Bureau of Science and the Weather Bureau; and required to serve during ninety working days of each year as a member of the upper house

of the Philippine Legislature can, in my opinion, not safely devote more time than I have given to the inspection of the wild man's territory and the investigation of conditions there.

The truth is that such territory ought to be inspected more frequently than once a year, and it should not be possible to forecast the date of such inspection with as much certainty as at present exists. The knowledge that the Secretary in charge was likely to drop in at any time would have a very stimulating effect on officials as well as on the people.

In my opinion, executive control of the affairs of the Moro Province should be given to the Secretary who exercises similar control over the remainder of the non-Christian inhabitants of the Philippines. The Governor-General never has had, and in the natural course of events never can have, time personally to observe what is going on throughout this great region, and I reaffirm my conviction that the successful exercise of executive control over peoples like those which inhabit the Moro Province is only possible to one who has accurate and thorough first-hand knowledge of conditions.

The policy pursued in dealing with the non-Christian inhabitants of these Islands should be a fixed and definite policy, unchanging from year to year and persevered in until the wild man has become convinced by long experience that he will be helped and protected so long as he tries to do right and will be punished when he deliberately does wrong. Such a policy is rendered difficult when the attempt is made to carry it out under two executive officials as is now being done.

In my opinion the best solution of the difficulties above enumerated is to create the additional Secretaryship which has been provided for by law and to assign to the new Secretary executive control over the affairs of all the non-Christian tribes of the Philippine Islands, leaving him free from other duties save those of a member of the upper house of the Legislature. These he should continue to exercise so long as other Secretaries of Departments serve in a similar capacity. It might, however, well be understood that his presence at Manila should not be deemed essential except when matters concerning the non-Christian tribes were under consideration. He would thus be left free to devote his entire time to bettering conditions among that eighth of the population of the Philippines who most urgently need help and with whom substantial results are so readily obtained.

The Secretary charged with this work should have at his immediate disposal a coast guard vessel and his office should, as a

rule, be in the saddle or on this boat. His office force might well be limited to one stenographer, who would accompany him, and to an assistant.

The Secretary in charge of this work would be reasonably sure of continued tenure of office during such period as he obtained good results for the reason that the nature of his duties, involving as they would a good bit of hardship and some personal risk, no less than the attitude of the Filipino politicians and caciques toward efforts to help the non-Christians, would preclude the seeking of his position by mere politicians. On the other hand, a worthy appointee would find his compensation in an almost unparalleled opportunity to benefit his fellow men and in the warm gratitude of the people whom he served. Let there be no mistake about the fact that the wild people of the Philippines are genuinely appreciative of, and grateful for, all efforts for their benefit the nature of which comes within their comprehension.

I believe that the executive authority now exercised by the Secretary of the Interior should be so extended that appointments to offices in the special government provinces would be made by him subject only to approval by the Governor-General. For such highly specialized work he should be allowed to select his own subordinates and his disciplinary control over them would be greatly strengthened were he vested with the power of removal.

There should be a radical change in existing legislation relative to the expenditure of the so-called non-Christian inhabitants' fund set aside for the benefit of the non-Christian inhabitants of the regularly organized provinces. At present these funds are appropriated by provincial boards, subject to the approval of the Secretary of the Interior. While the boards of a limited number of provinces, including North and South Ilocos, Iloilo, and Ambos Camarines, have displayed some interest in expending these funds for the benefit of their non-Christian residents, the large majority of the provincial boards concerned either refuse or fail to take any action whatever, allowing their non-Christian inhabitants' fund to accumulate in the hope that they may some day be able to divert them to purposes other than those for which they are set aside. There does not exist any authority to compel them to act at all, and the purpose of the legislative body in setting aside these funds is being successfully obstructed.

The following table shows the records of the several provinces concerned:

*Statement of non-Christian inhabitants' fund from beginning of funds
(1906) to June 30, 1913.*

Provinces.	Receipts.	Expend- itures.	Balance June 30, 1913.
Albay	₱1,241.38		₱1,241.38
Ambo Camarines	8,256.60	₱7,564.08	692.52
Antique	4,162.67		4,162.67
Bataan	2,310.31		2,310.31
Bulacan	577.48		577.48
Cagayan	172.98	6,172.98	
Capiz	7,833.59		7,833.59
Ilocos Norte	3,617.61	3,456.93	160.68
Ilocos Sur	46,208.81	30,576.15	15,632.66
Iloilo	8,882.83	4,605.32	4,277.51
Isabela	3,643.21	701.45	2,941.76
La Union	3,780.04	3,780.04	
Misamis	6,843.69	6,843.69	
Nueva Ecija	1,635.78	50.00	1,585.78
Occidental Negros	6,571.59		6,571.59
Oriental Negros	23,660.34	9,522.00	14,138.34
Pampanga	1,528.05	130.65	1,397.40
Pangasinan	4,712.01	2,307.37	2,404.64
Rizal	3,369.15		3,369.15
Samar	1,785.67	489.85	1,295.82
Sorsogon	57.13		57.13
Surigao	4,140.27	4,140.27	
Tarlac	2,271.28	1,066.33	1,204.95
Tayabas	3,900.77		3,900.77
Zambales	4,514.06	3,393.00	1,121.06
Total	161,677.30	84,800.11	76,877.19

As emergencies may arise simultaneously in widely separated parts of the territory inhabited by non-Christians, and as the death, resignation, or removal of governors and lieutenant-governors of special government provinces will from time to time create urgent necessity for the immediate appointment of experienced persons to positions of great responsibility, there should be provided an assistant to the Secretary having in charge work for the non-Christian tribes who should be given opportunity thoroughly to familiarize himself with conditions in the several provinces and should be available at any time to take over the duties of a governorship or lieutenant-governorship, thus avoiding to some extent the possibility of the occurrence of a vacancy in an important post with no well-informed and well-trained man immediately available for appointment thereto.

In view of the frequency and the ingenuity of the efforts unlawfully to deprive members of non-Christian tribes of their liberty or of their property, there should be in the office of the Attorney-General a lawyer subject to assignment, upon request of the Secretary having in charge the work for the non-Christian tribes, for the defense of members of such tribes who were too ignorant or too poverty-stricken to protect themselves when unjustly subjected to criminal prosecution, and to assist in saving real and personal property of those who were being unlawfully deprived of the one or the other.

Were the changes above recommended made, the very important work of safeguarding the interests and stimulating the progress in civilization and material prosperity of these wards of the United States would be placed upon a much more satisfactory basis than at present and its ultimate success would be practically assured.

BUREAU OF HEALTH.

The work of the Bureau of Health has been more successful during the past year than in any previous year since the American occupation. No serious epidemic of disease has occurred in any part of the Archipelago and health conditions throughout the Islands have been relatively excellent.

LOW DEATH RATE AMONG GOVERNMENT EMPLOYEES.

The death rate among Government employees has been brought down to the extraordinarily low figure of 3.09 per thousand. The rate among Americans was 2.49 per thousand; that among Filipinos 3.33. After making all reasonable allowance for the small number of very old people in the service, for the lack of children, and for the fact that most officers and employees are subjected to a physical examination before appointment, the result is extraordinary and conclusively shows that popular beliefs as to the deleterious effects of a tropical climate on persons of the white race are greatly in error. If one has due regard for certain well-known principles of right living, one's prospect of remaining free from dangerous disease is greater in Manila to-day than in many of the most sanitary cities of the United States. It should be remembered that the death rate above given covers the Government service throughout the Islands, and is not limited to those employees who reside at Manila.

HEALTH A PURCHASABLE COMMODITY.

It has been conclusively demonstrated that in the Tropics health is, within reasonable limits, a purchasable commodity. There is a definite relationship between the installation of artesian wells and the death rate. The routine use of quinine among the inmates of the Iwahig penal colony and the removal of mosquito-breeding places has shown that people living in a country where pernicious malaria infection prevails may be made, on the average, as healthy as are the residents of New York. The absence of a single death from smallpox in Manila during the past three years demonstrates what can be done

toward checking the spread of this pest. The sanitary improvement of the houses of the poor, and of the ground upon which they stand, produces definite results. With a proper organization there is a definite relationship between the expenditure of funds and the resulting decrease in the death rate. In these Islands the per capita cost of sanitary improvements has been extraordinarily low.

PUBLICITY WORK.

Owing to the ignorance of the general population, great importance here attaches to the distribution of simple information relative to the causes and the prevention of disease. The absence of epidemics during the year has left the Bureau free to do more than usual in this regard. A number of valuable pamphlets, couched in simple language and dealing with such subjects as "Philippine Habitations," "Insects and Disease," "Poisonous Fishes of the Philippines," and "Beriberi and How to Prevent It," have been scattered among the people and are being used with good effect as texts in the public schools. There has also been issued a circular of information concerning the Philippine General Hospital. Many popular health articles have been prepared for the public press and through this agency have been given wide circulation. A Sanitary Inspector's Handbook is soon to appear.

TREATMENT OF LEPROSY.

Continued success has been obtained in the treatment of leprosy with chaulmoogra oil. Two cases which have remained free from the disease for more than two years each have been discharged, while a number of others have been free from leprosy for twenty-two months and will be discharged at the end of two months if the disease does not reappear.

In order that too great hopes may not be aroused by these apparent cures, it should be remembered that in the experience of the Bureau one leper has apparently recovered spontaneously and that for a period of more than a year there have been some 20 patients under similar treatment to that mentioned above of whom but a few have shown any signs of improvement.

REGULATION OF MANILA DANCE HALLS.

An ordinance for the regulation of Manila dance halls, drafted by the Bureau of Health and approved by me, has been adopted by the Municipal Board. The necessity for such an ordinance to prevent the spread of dangerous communicable diseases, in

which the dance halls were an important factor, was undoubtedly among those familiar with the facts. The plain truth is that these resorts, which have masqueraded as harmless popular amusement halls, were places of gross immorality which played so important a part in their economy that the enforcement of this sanitary ordinance has practically abolished them—a result on which the Municipal Board and Bureau of Health have been congratulated by every decent element in the community, although both were viciously attacked by the baser element and by those financially interested in these sinks of iniquity.

LANTERN EXHIBITIONS.

Lantern exhibitions have been employed to disseminate among the masses useful information of a hygienic and sanitary nature. A large number of slides and a suitable text were prepared by the more experienced medical officers of the Bureau. The text was translated into the several important native dialects and a competent man was detailed to give illustrated lectures in Manila and in the provinces. These lectures have proved very popular. I know of no equally effective means of interesting the masses, and believe that the system should be greatly extended.

SANITARY IMPROVEMENT OF ILOILO.

Sanitary conditions at Iloilo, the second city in commercial importance in the Philippines, have been continuously bad. That place has a municipal government with elective officials. Every effort to have its municipal council enact a suitable sanitary ordinance had failed. The apathy of the local officials blocked all attempts to effect sanitary reform.

The outbreak of bubonic plague gave opportunity for introducing sanitary measures which could not, under ordinary conditions, have been put into effect. The council was at last induced to pass a sanitary code and the hearty coöperation of many of the local officials in its enforcement was secured. District Health Officer Cullen was transferred to Iloilo from Samar and has brought about many important sanitary reforms. Low lands are being filled or drained; venereal disease, which was rampant, is being brought under control; the occupation of basement rooms in buildings on low lands is being gradually stopped; a system of street cleaning and garbage disposal has been introduced. Lack of funds seems now to be the chief obstacle in the way of putting the city into the best sanitary condition. The attitude of the provincial governor, Hon.

Adriano Hernandez, toward sanitary work is especially appreciated by the Director of Health and by me. Present indications are that he will see enormous sanitary improvements in his provincial capital during his term of office; indeed, the improvement already accomplished is very great.

THE MANILA MILK SUPPLY.

Owing to causes enumerated in previous reports, the Manila milk supply continues very unsatisfactory. The last Legislature made an appropriation for the Society for the Protection of Infants providing for the construction of a building to house the sterilizing outfit donated by Mr. Nathan Straus of New York, at the same time imposing conditions which render it possible for the Director of Health to require and secure the sterilization there of all milk offered for sale in Manila. Important results will surely follow the carrying out of this reform.

THE SOUTHERN ISLANDS HOSPITAL.

The last Legislature made appropriation for opening this important institution, which had stood for more than a year with closed doors although ready for use. It is steadily growing in popularity, and has already accomplished great good. Its chief operating room nurse is a young Filipina woman educated at the Philippine Training School for Nurses. She is rendering most excellent service.

IMPROVEMENT IN THE MANILA FREE OBSTETRICAL SERVICE.

As properly trained Filipina nurses have become available they have been substituted for the midwives heretofore employed by the Bureau to render free obstetrical service in Manila. That city now appropriates ₱7,000 toward the cost of this service. The patients are being handled in the free beds of the Philippine General Hospital and a large part of the expense involved will hereafter fall upon the Bureau of Health. The service constantly increases in popularity and is invaluable both because of the resultant saving of the lives of mothers and infants, and because of the real education experienced by ignorant mothers who are given perfect care.

FOOD AND DRUGS INSPECTION.

On December 1, 1912, the practice of relabeling misbranded articles offered for import at the customhouse was discontinued except in the case of foods and drugs offered for importation for the first time. The Food and Drugs Act has now been in force for six years and sufficient time has been afforded im-

porters to have their goods meet the requirements of the law unless they are importing new brands.

Rules have been adopted which insure purity and good quality in the ice cream sold locally and in the coffee put up in the Philippines. Previously there was a mixture sold as coffee which contained no coffee at all.

The examination of drugs put up by local pharmacists showed that in many cases tablets and capsules contain less of some important ingredient than the label called for. Conditions of this sort, which might cost valuable human lives, are especially reprehensible. A number of cases were prosecuted and convictions were secured. I was asked to intervene on the ground that the short weights were the result of the carelessness of incompetent employees rather than of deliberate intention on the part of owners of pharmacies. I refused to do this, holding that the owners were responsible for their subordinates.

There seems to be a growing appreciation by importers of the efforts of the Bureau to secure pure food products and correct labeling. Importers now confer freely with the Bureau, requesting information and instruction.

RICE POLISHINGS OR TIQUI TIQUI.

Because of its value as a remedial agency in the treatment of beriberi, experiments have been made to determine whether tiqui tiqui as produced at the rice mills could be utilized as a food product for general human consumption. The difficulties in the way of making it into a palatable food were found to be not readily surmountable. Experiments are now being made with yeast as a food, as it seems to produce results similar to those obtained with tiqui tiqui.

THE SCHOOL LUNCH SYSTEM.

A large percentage of the people of the Philippines are underfed because of the character of their diet. This is especially true of school children, many of whom stay through a long morning session without having had any breakfast. There has been established a comprehensive lunch system in the Manila city schools as a result of which nutritious lunches are furnished at an absurdly low cost to all who care for them. For 4 centavos (practically 2 cents gold) a pupil can obtain a bowl of hot, nourishing soup or stew, a buttered sandwich, a piece of cake, and a glass of ice cream or an ice.

At the Tondo Intermediate School the articles sold are grouped under the following heads: Fritters, ices, tarts, cookies,

pies, hot biscuits, soups and stews, sandwiches, cakes, muffins, and miscellaneous, the latter designation covering doughnuts, chicken pie, deviled crabs, cheese straws, fried salmon and bread, baked potato and salmon, johnny cake, Washington pie, and macaroni and cheese, while from two to five different articles are furnished under each of the other heads, so that the tastes of all may be suited. The most expensive item on this list costs but 5 centavos (2½ cents gold) and even then a small profit is made, as all the work of preparing and cooking the food, washing the dishes, etc., is done by pupils under the supervision of teachers. The pupils are thus taught to prepare wholesome and nourishing food in a strictly sanitary way and at the same time learn how very inexpensively they may live well. A medical inspector formerly detailed to the city schools states that a year after this lunch system was established the health of the pupils had improved 90 per cent. It should not be understood that the Bureau of Health takes credit for this admirable lunch system originated by the Bureau of Education. I mention it as a matter vitally influencing the health of school children.

INSTRUCTION OF SANITARY INSPECTORS FOR WILD TRIBES.

A small class of Ifugao, Bontoc, and Kalinga young men has been started at the Bontoc Hospital, where its members will undergo a short apprenticeship as hospital helpers and will receive instruction in elementary sanitation and in the use of a few simple remedies. Their services will be invaluable upon their return to their towns.

We have in the Mountain Province but two physicians regularly employed to meet the medical and surgical needs of some 400,000 wild people. There is no greater opportunity for real missionary work than that afforded by the needs of these simple people, and the way for such work has now been prepared.

AMBULANCE SERVICE.

All ambulance work of the Bureau of Health is now done with motor cars, of which there are five. Four of these are driven by electricity. The other is a high-power gasoline ambulance of wide radius which can be sent into the provinces. It can make a speed of sixty miles an hour and will climb any road grade. It is really a small hospital on wheels, having a lavatory, water-sterilizing apparatus, formaldehyde disinfecter, surgical instruments, upper and lower berths, table, etc. With the large and constantly increasing mileage of good automobile roads extending



OLD-STYLE IGOROT MEDICINE MAN.

He is treating a sick child. He rubs a silver dollar on the blade of a bolo held vertically.
If the dollar sticks to the bolo the child will recover; otherwise not.



NEW-STYLE IGOROT MEDICINE MAN.

Bright young Igorots are trained at the Bontoc Hospital to vaccinate against smallpox and to use simple remedies in combating malarial fever, dysentery, and similar ailments.

out from Manila this motor operating room makes it possible quickly and effectively to meet serious conditions when patients living at a distance cannot be removed to the hospital.

INJUNCTION AGAINST THE DIRECTOR OF HEALTH DISSOLVED.

One of the most important events of the year has been the dissolution of the injunction against the Director of Health restraining him from ordering persons in Manila to connect their premises with the new sanitary sewer system of the city. The question involved is that of the power of the city of Manila through the Director of Health to compel its citizens to use a modern sewer system which has cost the taxpayers more than ₱4,000,000 and was installed for the express purpose of improving health conditions. The final satisfactory outcome of this matter removes one of the most serious difficulties in the way of making Manila a thoroughly sanitary city.

INCREASED USE OF MILK.

Not only has progress been made in establishing modern sanitary dairies to furnish fresh milk to the residents of Manila, but the importations of tinned natural milk show a steady increase. This is a most helpful sign.

ANTIMOSQUITO WORK.

The results of antimosquito work in Manila have been very satisfactory. As previously noted, the extraordinarily low water caused by the drought of 1912 caused extensive areas along the Pasig River to be flooded by the sea at high tide, and led to a temporary enormous increase in mosquitoes of a species which breeds only in brackish water. With the disappearance of these unusual conditions at the beginning of the heavy rains, the number of mosquitoes rapidly diminished and it is now exceptional to find one in many parts of the city where they used to swarm.

STERILIZED WATER FOR PUBLIC EATING PLACES.

It has been found difficult to compel the keepers of small shops where food is sold to serve distilled water which has been kept free from harmful germs after distillation. As is usually the case, a simple remedy has been found to be the satisfactory one. Such places are now required to keep at least two large teakettles and to sterilize the city water by thoroughly boiling it. The kettles are kept closed except when being filled or cleaned. One is in use for sterilization while water is being served from the other.

MANILA PUBLIC MARKETS.

The city ordinances now provide that fresh meat, fish, poultry, and green stuffs intended for food may be sold only in public markets, thus making effective inspection and supervision practicable. This is one of the most advanced pieces of legislation yet enacted by any city, and its enforcement is proving of great value in bettering health conditions.

Two new modern markets of reinforced concrete have been opened. Even the tables are of concrete and the buildings have water facilities which make it readily possible to keep them scrupulously clean. Forks are provided in the meat stalls to prevent the handling of meats. Substantial screen cages protect meats from flies before sale.

MARKETS IN THE PROVINCES.

The Executive Bureau has adopted the policy of financing the construction of modern sanitary markets in many provincial towns by authorizing loans for this purpose from the gold standard fund. The public market in a Filipino village is the most important social center of the place, and its maintenance in a sanitary condition is essential if the public health is to be protected. Formerly such structures were usually badly built of bamboo or wood, floorless, and with thatched roofs. The new markets have floors of concrete and roofs of galvanized iron or tile. This investment of gold standard funds is very safe, as the buildings are fireproof, while the profits derived from them begin promptly and are large. The erection of such buildings tends to stimulate the civic pride of the townspeople.

CONDITIONS IN BUTUAN AND BUKIDNON.

During the year substantial progress has been made in improving sanitary conditions in these two subprovinces of the Province of Agusan. The personnel has been increased by sending Doctor Garcia to the Butuan Hospital and by adding Mr. Manuel Paras, a graduate of the Philippine Training School for Nurses, to the working force. This leaves Doctor Ampil, the district health officer, free to do more work in the Christian municipalities and in the settlements of the wild people than has previously been possible.

Plans are completed for the construction of a modern concrete hospital at Butuan.

SIBUL SPRINGS.

Very numerous complaints have been received relative to sanitary conditions at Sibul Springs. The public seems to believe that the control of the Government reservation at this important health resort is vested in the Bureau of Health because its representative sells bath tickets, which in reality he is allowed to do only because there is no one else available for this work.

The management of the Sibul Springs is in charge of the Sibul Springs Improvement Committee and the way in which the work has been done, or rather left undone, is a strong argument against again turning such an undertaking over to a committee instead of intrusting it to competent, responsible, salaried employees.

SIMPLE REMEDIES PACKAGES.

Packages of simple remedies of three sizes, sent out by the Bureau of Health, steadily grow in popularity with the public. Their distribution has made it possible to destroy the stocks of dangerous drugs, formerly kept by municipalities, without creating too much ill will. The presence of stocks of these drugs in remote places where there were no physicians to use them was a menace to the public health.

USE OF DISTILLED WATER IN MANILA DISCONTINUED.

Artesian water of such excellent quality has been secured in Manila that it has been possible to discontinue there the use of distilled water. There was some reason to believe that the drinking of distilled water, continued during many years, was resulting in injury to the health of some of the users. At all events artesian well water is an agreeable substitute for the distilled article.

THE ANTIPOLO PILGRIMAGE.

At a certain season of the year people in great numbers visit the shrine of "Nuestra Señora de la Paz y Buen Viaje" at Antipolo. The pilgrims frequently number 10,000 or more per day. The town is not provided with adequate sanitary facilities and the efforts of the Bureau of Health to have this condition remedied have not as yet resulted successfully. The opportunity for spreading communicable diseases afforded by gatherings of this sort is almost unlimited and unless the conditions which

prevail at Antipolo are remedied the people of the Archipelago will sooner or later pay a heavy penalty for their present and past indifference.

NEW METHOD OF COLLECTING GARBAGE AND REFUSE.

A private firm has made a contract with the city to remove its garbage and refuse by means of motor trucks. It purposed to utilize the city waste for profit in a modern plant and to collect it quickly and noiselessly, thus decreasing the probability of annoyance to the public.

Efforts have been made in the past to require property holders to provide themselves with galvanized-iron garbage receptacles, but have proved futile as those who were willing to incur the necessary expense promptly lost their cans through theft which the municipal police were unable to prevent. Furthermore, the galvanized-iron tanks soon became injured so that their covers no longer fitted tightly. At present the majority of property owners put their refuse and garbage out in barrels, boxes, and baskets. These are upset by hungry, prowling dogs and the streets are thus littered with dangerous refuse which furnishes abundant food for rats. The city is soon to furnish tightly closing wooden receptacles of a type which has been thoroughly tested and found satisfactory, charging a rental of P3 per year for each, and replacing any which are injured or stolen. This should greatly facilitate the antirat campaign.

THE FILLING OF LOWLANDS WITH STREET SWEEPINGS.

The undesirability of using street sweepings for filling lowlands is fully appreciated, but with the immense swampy areas which still remain and the very limited funds available for filling them it has been found expedient to allow the use of street sweepings, which is unobjectionable if they are promptly covered with a minimum of 20 centimeters of clean earth or sand.

Large tracts of desirable, well-drained land have already been produced in this way where formerly there were stagnant pools of filthy water.

DUTIES OF THE BUREAU OF HEALTH.

The duties assigned to the Bureau of Health include not only those usually imposed on similar organizations in the United States, such as the collection and compilation of vital statistics and the protection of the public from dangerous communicable diseases, but also embrace the distribution of certain public charity funds; care of the insane; supervision of the

care of orphans and of the aged; supervision of general and special hospitals; the hygienic and medical care of more than 12,000 civilian employees; the administration of the Food and Drugs Act; the duties of coroner's physician; the making of physical examinations of all candidates for the public service; the work of police surgeon; the enforcing of plumbing and building ordinances; investigation of water supplies; passing upon the analyses of all artesian well waters before their use is permitted; and many other matters.

HOSPITAL ADMINISTRATION.

The wisdom of having all Government hospitals administered from one central office is frequently illustrated by the advantages and economies resulting from the standardization of supplies, the transfer of personnel from one hospital to another to meet temporary emergency conditions, the training and discipline of the entire force of employees and that of the laborers, at first unskilled, who are necessarily employed in large numbers.

REGULATIONS FOR THE PHILIPPINE GENERAL HOSPITAL.

The Philippine General Hospital is a great and constantly growing institution. It serves representatives from every walk in life from the highest to the lowest and people of almost every nationality there seek relief. The framing of adequate rules and regulations for its control has been a serious task, and much experience was necessary before the work could be completed. Regulations which clearly set forth the privileges of patients as well as the duties of officers and employees have now been printed, as has a circular of information regarding the hospital which is a great convenience for its patients.

THE RELATIONSHIP BETWEEN THE PHILIPPINE GENERAL HOSPITAL AND THE COLLEGE OF MEDICINE AND SURGERY OF THE UNIVERSITY OF THE PHILIPPINES.

In my last annual report I set forth at some length the plan which I originated, and which was ultimately carried out, for the establishment of a great General Hospital, a thoroughly modern College of Medicine and Surgery, and a great institution for scientific research and the making of routine biological, chemical, and other scientific investigations.

In accordance with this plan, coöperation between the officers and employees of each of these institutions was provided for to the end that a maximum of efficiency and economy may be obtained. So far as concerns the relationship between the

hospital and the Bureau of Science, the arrangement has worked very satisfactorily. I regret to say that a similar statement cannot be made concerning the relationship between the hospital and the College of Medicine and Surgery.

The college is under the control of the Board of Regents of the University of the Philippines, of which the Secretary of the Interior is a member. The hospital is under the control of the Secretary of the Interior.

Realizing to the full the fundamental importance of clinical teaching to the medical students, I caused every facility which this great hospital affords to be placed freely at the disposal of the college. I was under no lawful obligations to do this. It was in the first instance a strictly voluntary act.

As a result, admission to 200 free beds is now controlled by the faculty of the college, who are responsible for the medical and surgical treatment of the patients which fill them. Patients occupying these and all other free beds are admitted subject to the condition that they will allow their cases to be studied by the faculty and students of the college. Students, as well as members of the faculty, are given access to other than charity cases if of especial interest when the patients concerned are willing to aid science by allowing this. Medical students and recent graduates are given hospital appointments which afford them admirable opportunity for practical work.

Under provisions of existing law enacted in order to secure for the hospital the services of the best physicians and surgeons employed by the Government, of assuring coöperation between the three institutions above mentioned, and of obtaining a maximum of efficiency at a minimum cost, the Secretary of the Interior is authorized to require any physician in the employ of the Government to render service at the hospital, subject to the approval of the proper Secretary of the Department or of the Board of Regents, as the case may be. With the approval of the latter body I have required several American professors and assistant professors in the University to serve as chiefs of departments of the hospital or in other capacities. Under the terms of their University appointments these officers are authorized privately to practice their professions in the hospital for gain. They are furthermore allowed to make free use of operating rooms, surgical and other instruments and equipment, and of the excellent facilities for the treatment of patients afforded by the wards and private rooms. When I say that the use of these facilities is free, I mean that no charge is imposed on them for it. Their patients pay to the hospital the same charges as

would any other pay patient. These men also use hospital offices for their private office practice. Not only are such privileges very valuable, but the men themselves are receiving salaries running up as high as ₱8,000 and ₱10,000 per year and are under obligation to give full time to the work of the Government.

Incredible as it may seem, they object to furnishing officers and employees of the Government the medical and surgical treatment to which the latter are lawfully entitled as a part of their compensation. Not only is this the case, but the suggestion has been made in the past that work for Government officers and employees be turned over to their assistants, most of whom are young Filipinos in progress of gaining a medical education!

A further complaint, having its origin in the same underlying cause, is that these regularly appointed members of the hospital staff are required to treat outside patients who do not ask for the private services of any special physician or surgeon, and are therefore entered as General Hospital patients and pay their fees to the institution instead of to individual practitioners.

The explanation of both complaints is that the men in question are so absorbed in money-making that they forget the priceless privileges afforded their college by the hospital, which are indeed practically unrivaled elsewhere; forget the extraordinary personal advantages which they themselves enjoy by virtue of their hospital positions; forget that the Government is paying them liberally for full time; forget that they are enjoying a very special and exceptional privilege, not only in being allowed to engage in private business, but in being allowed to utilize Government property and quarters to conduct it. They wish to escape the performance of work for which the Government which employs them is compelled to provide, so that Government officers and employees, as well as persons who enter as General Hospital patients, may be compelled to employ them privately and to pay them for their services.

This would be the inevitable result of acceding to their wishes if they were allowed to retain their hospital positions, as there would then be no other competent Government employees available in the hospital to treat the above-mentioned two classes of patients. The only apparent way out of the difficulty, should the Board of Regents see fit to exercise its undoubted power to free them from any obligation to serve the hospital, would be promptly to terminate their hospital appointments and to employ other physicians and surgeons to do the General Hospital work which they now perform.

Their attitude is the more inexcusable because the present

method of conducting the hospital results in very heavy expense to the Government which could be avoided if the training of medical students and young medical graduates at the hospital were abolished. In that event the saving in efficiency and in the avoidance of interruption to work would be such that the Director of Health would gladly undertake to provide for the treatment of the present number of patients and for the maintenance of the present standard of efficiency without any increase in his appropriation.

In my opinion, any request on the part of officers of the College of Medicine and Surgery who are members of the hospital staff to be relieved of work for Government patients or for General Hospital patients should be emphatically denied.

The immediate result of granting it would be that so far as concerns Government employees, they would in practice be for the time compelled to become the private patients of these members of the faculty of the College of Medicine and Surgery, and to pay such charges as the latter might see fit to impose. In other words, until such time as the Director of Health could secure competent men to replace them, work for which he is by law required to provide would be crippled as the direct result of his willingness to help the college and his desire to save needless expense by utilizing the services of members of its faculty.

In this connection I must call attention to the fact that the charges which have sometimes been imposed on private patients by certain of the University members of the present hospital staff have provoked bitter complaints which have been forwarded to me. I have ruled that I was without authority to deal with the matter.

It may be worth while to call attention to the further fact that in the past there has existed an understanding among leading physicians and surgeons of Manila for the purpose of controlling charges. It is no part of the duty of the Director of Health personally to give medical or surgical attention to Government officers or employees, but the present Director of Health has throughout his official career given a very large amount of professional assistance to such persons without money and without price. One of the leading surgeons of the city called upon him and warned him that he must discontinue this practice or the "combination" would break him. The combination was advised to do its worst, but fortunately could not make its threat good, although the Director of Health was thereafter persistently and insidiously attacked.

The arrangement under which private individuals may become patients of the hospital and pay that institution for the services of its staff allows the Director of Health to exercise direct intervention in the matter of fees and affords the public protection. The interest of the public is entitled to consideration in a Philippine general hospital, whatever might be the case in a university hospital.

I have found a simple if somewhat radical cure for similar evils resulting in the desire of certain officers of the Bureau of Health to practice their profession for private gain, and have now adopted a fixed rule that no officer or employee of that Bureau shall be allowed to practice privately in the Philippine General Hospital. A similar rule applied by the Board of Regents to the members of the faculty of the College of Medicine and Surgery who serve on the staff of the hospital would in my opinion be in the public interest and I am firmly of the opinion that it ought at least to be enforced in all cases of new appointees.

Before closing this discussion, I must add that there have been repeated instances of disloyalty on the part of members of the college faculty toward the General Hospital; that there has been a long-continued effort to oust the Director of Health and his subordinates from the control of the institution and to transfer such control to the faculty of the college, and that there have resulted endless annoyance to the Director of Health and to the Secretary of the Interior, as well as serious interference with the efficient conduct of the institution. Such conditions cannot be tolerated indefinitely and if the mild methods which have thus far been employed in meeting them prove ineffective, a very different procedure must be employed.

Members of the faculty of the College of Medicine and Surgery who are allowed to engage in private business by practicing their professions in that institution, who are permitted in doing this to use Government offices and Government property, and are not willing uncomplainingly to devote reasonable time to such medical and surgical work of the Government as may be requested of them in the interest of economy and efficiency, should be considered ineligible to hold positions on the hospital staff and should be allowed to use the facilities of the institution only under conditions identical with those which attend its use by any reputable private physician or surgeon.

The task of providing for the Government work by employing at adequate salaries competent men willing to devote all of their time to the Government service in the hospital, and to forego

entirely the privilege of private practice, would devolve upon the Director of Health. He would, I am sure, be found quite undismayed at the prospect.

It is fortunate for the progress of medical science that there are many highly competent physicians and surgeons in the world to whom the opportunities afforded by staff positions in such an institution as this appeal more than does the pursuit of the elusive dollar.

This arrangement would have one decided advantage in that it would increase the number of high-grade physicians and surgeons residing at Manila, while the opportunities afforded the public of obtaining treatment by the staff of the General Hospital at reasonable cost would tend to keep the fees charged by private physicians and surgeons within reasonable limits.

The happiest solution of all would be for the members of the college faculty who serve on the hospital staff cheerfully to perform the duties imposed upon them, and earnestly to coöperate in the carrying out of a plan the breadth of which ought to appeal to all scientific men—a plan which has met with the emphatic approval of many of the men best qualified by thorough professional training, long experience, and wide opportunities for observation to pass upon it.

PUBLIC LAUNDRIES.

The necessity for public laundries is one which has been frequently discussed but never before acted upon. It is a pleasure to report that one such institution has now been completed in the Sampaloc District and is open for use. Others will be built in the near future.

ARTESIAN WELLS.

One hundred and nineteen successful wells have been bored during the year. The construction of these wells, which yield abundant supplies of healthful drinking water, is a matter of fundamental sanitary importance and should be pushed as rapidly as funds will permit.

THE PHILIPPINE TRAINING SCHOOL FOR NURSES.

It has finally been decided to fix the length of the training-school course for nurses at three years, with an additional six months post-graduate course for those who may desire it. The graduates of this school are extremely well trained and the demand for them far exceeds the supply. In order to meet

this condition numerous graduates from other schools, not so well equipped as is that of the Government, are admitted and given special courses during a period of six to twelve months. Our Filipina nurses are now rendering invaluable service in a number of provincial municipalities as well as in private hospitals and Government institutions. In the provinces these well-trained young women go from town to town visiting the sick in their homes and giving public lectures. Their services have proved of especial value in combating epidemic diseases like bacillary dysentery. As was to be anticipated it has proved most advantageous to be able to deal with the more ignorant classes through competent persons who can talk with them in their native dialects.

The only thing which prevents my recommending a radical increase in the number of scholarships available at the training school is the fact that after exhausting every available inch of space in the General Hospital, and utilizing room badly needed for other purposes, existing dormitory facilities are very inadequate for the number of nurses already in training. The proposed new nurses' home for the graduate Filipina nurses should be erected at the earliest possible time and I earnestly recommend that this be done.

THE FLY MENACE.

Flies are less common in the Philippines than might be anticipated in a tropical country, but at times they become a nuisance and a serious menace to the public health. The Bureau of Health is succeeding in making them unpopular through the agency of public lectures and the circulation of a bulletin printed in a simple, readable form. The Bureau of Education has rendered most valuable assistance in this work.

WORK OF THE MANILA FREE DISPENSARIES.

The Bureau of Health maintains free dispensaries in the Philippine General Hospital and the San Lazaro Hospital, and at each of five outlying health stations. It contributes medicines to five private hospitals in the city for use in charity cases. The dispensaries not directly under the Bureau have always made a small charge for medicines when patients were able to pay. The dispensaries of the Government have not done this until April 1, 1913, but as this liberality in giving medicines away was abused the custom has been inaugurated of

collecting a nominal fee of 20 centavos for each prescription or dressings from persons obviously able to pay. There has been no material resulting falling off in the number of patients treated, as those who really cannot afford to pay are still supplied with medicines free of charge.

WATER AND HAND BORNE DISEASES.

There has been no cholera in the Philippines during the year and dysentery is on the decrease, but typhoid fever is gaining ground. The same measures which are effective in dealing with cholera are employed in combating the other two diseases and the campaign never ceases.

HOME PASTEURIZATION OF MILK.

Attention has elsewhere been called to the unsanitary character of much of the milk sold in Manila. The bacteria found in fresh milk average about 7,000,000 to the cubic centimeter. It is essential that such milk should be sterilized before feeding it to infants. The Bureau of Health has issued a circular showing how this may be readily done by the poor at home, and every native family is being furnished with a copy of it by sanitary inspectors who personally call attention to its value and explain any parts of it which are found not to be understood.

MEDICAL INSPECTION OF MANILA SCHOOLS.

Medical inspection of the Manila public schools has been continued through the year. The number of pupils examined was 2,466. The necessity for such examination is conclusively demonstrated by the fact that 1,649 cases were referred for treatment as follows:

Afternoon school clinic (school inspector).....	909
Eye and ear clinic, Philippine General Hospital.....	251
Dental clinic, Philippine General Hospital.....	89
Municipal physicians	22
Other physicians and clinics.....	378
 Total	 1,649

As the result of this work the more serious forms of skin trouble are becoming rare among school children, and trachoma is well under control. Tuberculosis presents a serious problem. There are some cases in every school. An open-air school should be established for the treatment of tubercular and anæmic children.

INFANT MORTALITY.

This subject is one of vital importance, and I quote in full the statements concerning it made by the Director of Health in his annual report:

The disastrous effect of a high infant mortality and the need of concerted action to check it is appreciated the world over. Conditions in this country are not relatively worse than in many other parts of the world. The startling revelations of vital statistics have aroused practically every nation to the tremendous waste which the appalling death rate of children under 5 years of age imposes upon the resources of the world as represented by its greatest assets—human life and human health. Not only must the life of the children be considered, but the drain upon the mothers and the impoverishing effect upon families must enter into the final estimate. Such a drain interferes with the growth and economic progress, morality, and evolution of a country.

The moral question involved transcends the mere duty of every human being to save such lives. It will in the course of time exert a vital influence on a nation's faith and social attitude. Mothers who are forced to yield more than half of their children to the grave while they are yet dependent on their love for their very existence cannot forever maintain a spirit of resignation and charity. In time their hearts will harden and their attitude toward their fellow beings change, and so will a nation change, for it is upon the character of its motherhood that the character of a nation or people depends.

Thousands of dollars are spent in building life-saving stations for those who brave the fury of the angry seas; many are the devices that have been invented for rescuing those who are threatened by the flames; yet too often helpless children are left to cruel fate.

Experience and science have demonstrated that a large proportion of the children who die can be saved; that the greater part of such deaths are unnecessary; that every year countless numbers of children in every country are sacrificed on the altar of ignorance, indifference, or willful neglect.

This country is not behind in the awakening crusade that seems to be world-wide. The Philippine Legislature has taken up the question and a scientific committee is now investigating the problem. Even in the remote provinces health officers are holding hygienic conferences.

Congresses on child welfare and child hygiene have been recently held in the United States, England, France, and Germany, and other meetings of this nature are being arranged for in other countries. Every phase of the question is being investigated and it is hoped that the next few years will witness a decrease in infant mortality commensurate with the efforts that are being directed against this formidable obstacle to the world's progress.

In the Philippines much evidence has accumulated which appears to show that beriberi in mothers is associated with the high death rate of children under 1 year of age.

The Committee on Infant Mortality which was created by an Act of the Legislature has been at work for more than one year and will probably make a report of its finding and recommendations in the near future.

TUBERCULOSIS.

The great white plague continues to prey ruthlessly upon the inhabitants of the Philippine lowlands. At the biennial meeting of the Far Eastern Association of Tropical Medicine held in Manila in March, 1910, the subject of tuberculosis in the Philippines was thoroughly discussed and the conclusion reached that no substantial headway could be made against the spread of the disease without the hearty coöperation of the people through a great antituberculosis organization such as now exists in many of the civilized countries of the world. The Philippines are the first of the far eastern countries to establish such an association.

The Philippine Anti-Tuberculosis Society is incorporated under Insular laws. It is controlled by a council of eleven, elected at the annual meetings by the active members. The president may form divisions of the society by appointing a director, a secretary, and a treasurer in any provincial capital.

The most important work of such an organization is obviously educational. The well must be prevented from contracting infection and those in the early stages of the disease must receive seasonable advice as to what they should do to be cured. The next thing of paramount importance is the establishment of sanatoria for early cases, and of hospitals for cases which are so far advanced as to make cure impossible but are nevertheless a danger to the community because they serve as centers of infection.

The Anti-Tuberculosis Society has inaugurated a very valuable educational campaign and has agitated, thus far in vain, for sufficient funds to erect a hospital for advanced cases.

At San Juan del Monte, near Manila, it is operating a hospital for incipient cases with a considerable degree of success. It maintains five clinics and free dispensaries in Manila, with an average weekly attendance of 328. All patients are visited in their homes by graduates nurses in the employ of the society, who give them special instruction regarding the more essential features in the treatment and prevention of tuberculosis.

This society is in the highest sense an organization "of the people and for the people."

Conditions at Baguio, where there are a cool climate and a bountiful supply of fresh, pure water, an abundance of fresh vegetables and small fruits and beautiful pine forests, make it an ideal place for the treatment of tuberculosis and each year adds to the evidence that its climate is most beneficial for those suffering from this disease.

Appropriations for combating tuberculosis are made directly to the Philippine Islands Anti-Tuberculosis Society. The Bureau of Health has coöperated in the work of the society in every possible way, and has done much in independent work with its own funds. At its advanced-case hospital on the San Lazaro grounds there is an average attendance of more than 50. No case that applied there during the year was refused admittance. The Baguio Tuberculosis Camp for the treatment of early cases has been filled to its limited capacity and very satisfactory results are obtained there.

Antituberculosis work in the Philippines suffered a most serious loss when Mrs. Eleanor Egan, president of the Anti-Tuberculosis Society, returned to the United States. Mrs. Egan had given lavishly of her time and her boundless energy to the work of the society, and her place will not soon be adequately filled.

NEED OF A NEW CREMATORIUM.

The only crematories in the Philippine Islands for human bodies are two operated by the Bureau of Health on the San Lazaro Hospital grounds. Both are out of date and a new modern crematory should be constructed, leaving the old ones for emergency use. This would give a decided impetus to the cremation idea, which, in the opinion of the Director of Health and myself, should be fostered so far as possible.

DECREASE IN THE MANILA DEATH RATE.

There has been a marked decrease in the Manila death rate, especially during the last six months of the year. The following table shows the rate for these months; also the average rate for the same months during the previous five years:

Months.	Average death rate for five years previous.	Death rate for 1913.
January	40.27	25.23
February	35.07	24.76
March	38.68	22.66
April	31.62	22.95
May	31.64	25.83
June	33.58	22.96

The decrease in water-borne diseases, owing to the radical improvement in the water supply and to the increasing use of distilled and artesian waters for drinking purposes, seems to have been the greatest single factor in bringing about this im-

portant result; but the growing use of the new sewer system, the better disposal of garbage and refuse, frequent street sweeping, improvement in the quality of foods and drugs in common use, the effective isolation of persons suffering from dangerous communicable diseases, greatly increased and improved hospital facilities, the regulation of milk supplies, the enforcement of building ordinances resulting in the construction of more sanitary houses, and the obliteration of many unsanitary slum districts have all played their part.

RELIEF FOR SUFFERERS FROM TYPHOONS.

The preparedness of the Insular Government to cope with sudden emergencies was demonstrated by the fact that within five hours from the time the first news of the Cebu typhoon was communicated to the several bureaus concerned, a steamer loaded with the necessary relief supplies had sailed. The Bureau of Health placed on board it a complete hospital equipment with sufficient medicines and supplies to relieve distress throughout widely separated regions, and sent a force of 8 doctors, 6 hospital corps men, and 3 nurses to supplement the force already available and on the ground. The hospital corps men were furnished through the courtesy of the United States Army.

This storm caused more than 400 deaths in the Province of Cebu alone, but the number of wounded was comparatively small. There was also serious loss of life in Samar and in Leyte.

THE HIGH COST OF MEAT IN MANILA.

The following table shows the present cost of meat in Manila as compared with that at the neighboring city of Hongkong:

	Hongkong.		Manila.	
	Unit.	Cost. ^a	Unit.	Cost. ^b
Poterhouse	Kilo	\$0.35	Kilo	P0. 94
Sirloin	do	.35	do	1.12
Round	do	.35	do	.70
Rib roast	do	.35	do	.88
Soup meat	do	.28	do	.56
Soup bone	do	.07	do	.31
Flank	do	.24	do	.80
Tenderloin	do	.57	do	2.32
Ox tongue	Each	.40	Each	2.50
Ox kidney	do	.09	Kilo	.90
Tripe	Kilo	.11	do	.60
Liver	do	.24	do	.665
Heart	do	.24	do	.60
Tail	Each	.17	Each	.60
Brains	do	.09	Kilo	.90
Beef suet	Kilo	.35	do	.70
Veal	do	.35	do	P0. 60-1.30
Beef, whole hindquarters			do	.863
Beef, whole forequarters			do	.264

^a Mexican currency.

^b Philippine currency.



AMONG THE BAGUIO PINES.

The cool climate of the wonderful summer capital of the Philippines has proved most beneficial in the treatment of tuberculosis.

There can be no doubt but that these high prices tend to cause insufficient nourishment and thus injuriously affect the public health. Measures should be taken to stimulate the cattle industry in these Islands. Refrigerated meat, even if not too expensive, is disliked by many of the inhabitants.

HEALTH CONDITIONS AT BAGUIO.

In 1912 the antifly and mosquito campaign at Baguio produced the anticipated results, and health conditions at the summer capital were better during the 1913 season than ever before, diarrhœa and dysentery, which had sometimes previously prevailed at the beginning of the rains, being conspicuously absent.

DISPOSAL OF EXCRETA.

The satisfactory disposal of human excreta is one of the fundamentally important sanitary problems awaiting solution in the Philippines. It is especially grave in provincial municipalities and settlements. The Bureau of Health has designed a simple, inexpensive, perfectly ventilated wooden receiver for the ordinary 5-gallon kerosene tin of commerce. It is fly-proof and solves the problem. A determined effort to have it generally introduced is meeting with a large degree of success. Where no better means of disposal is available, the cans can be collected and emptied into a central pit which can be kept in a sanitary condition with comparative ease.

SANITARY CONDITIONS AT THE IWAHIG PENAL COLONY.

Early in the year the Iwahig penal colony was found to be in an unsatisfactory sanitary condition. Malaria was becoming prevalent, and mosquitoes were found breeding in many places where such a result could have been prevented. A number of the colonists were not provided with mosquito nets, and oil was not available in sufficient quantities for antimosquito work. The hospital equipment was inadequate in amount and poor in quality. As a result of repeated representations by the Director of Health and myself, and the active intervention of the Governor-General, great improvement has been brought about.

A TUBERCULOSIS HOSPITAL AT IWAHIG NEEDED.

The Director of Health has recommended the opening of a large outdoor tuberculosis hospital at Iwahig and the transfer thereto of all cases of tuberculosis from Bilibid Prison. Tubercular prisoners could thus be kept under better conditions than surround them at Bilibid, and those who recovered could have

open-air employment which would give them hope of remaining well, instead of relapsing as so frequently happens with those who are discharged from the tubercular hospital at Bilibid, to live again in necessarily cramped quarters and in close contact with the remaining prisoners.

BACILLARY DYSENTERY.

One of the severest outbreaks of bacillary dysentery of which there is any record in the Philippines occurred during July, August, and the first half of September. Nearly every province was affected and the number of deaths ran into the hundreds. Printed circulars telling how to avoid the disease were promptly forwarded to district health officers with instructions to have their contents made known to the general public, and wherever those instructions were carried out there occurred a marked immediate reduction in the number of cases. In this work a number of graduate nurses from the Philippine Training School for Nurses proved very valuable. They went to the stricken districts, lectured in the native tongues, visited the homes of the people, and demonstrated to them how to avoid infection. Had more provinces been able to employ nurses a large additional number of lives might have been saved. Where the necessary sanitary measures were adopted the disease disappeared within a few days. Where they were not put into effect it usually lasted from eight to ten weeks.

DIPHTHERIA.

More cases of diphtheria came under observation than during any previous year. We do not know whether this was due to an actual increase in the prevalence of the disease or to the increased efficiency of the Health Service which led to its more frequent detection. There was very severe criticism of the policy of the Bureau of Health in isolating all persons found to be harboring the diphtheria bacillus in their throats even though they presented no other symptoms of the disease, but this policy was nevertheless persisted in with my full approval.

INSANITY.

There are 3,376 known insane persons in the Philippine Islands, or an approximate average of 1 to each 2,000 inhabitants. In the United States there is 1 to each 304 inhabitants. It is a fortunate circumstance that insanity is far less common here than in the United States, for at present we can care for

only about 600 insane persons. This figure includes private as well as public institutions. Obviously the need of increased facilities is imperative. It is now a common practice to send insane persons from the provinces to Manila and abandon them there. The Bureau of Health is without funds which can be used to pay for their care.

LEPROSY.

Since the work of isolating lepers began, 7,546 have been collected. The number for the past year was 848. This work becomes constantly easier. Many cases now come forward voluntarily and ask to be taken to the Culion leper colony. The improvement in the provincial police service leads to the capture of increasing numbers of lepers who have heretofore kept hidden, but a considerable number escape after being apprehended by the municipal police so that there still exist a number of centers of infection. Until this condition can be remedied, the decrease in new cases will not be so rapid as has been hoped.

Much has been done to alleviate the lonesomeness and monotony of the life of the lepers at Culion. They were given a grand Christmas owing to the great liberality of the Manila public, and especially to that of the merchants and the children in the public schools, through whose kindness every leper at the colony received Christmas gifts. At this time a portable moving picture outfit was taken to Culion and they much appreciated the entertainment given. A fine amusement hall is now practically completed. It is intended to install there a moving picture outfit and an equipment for phonographic exhibitions, both of which will be greatly appreciated.

A large coöperative store, having its own currency and operated exclusively by leper employees, will soon be started. It will incidentally purchase any useful thing which a leper may produce, and it is hoped thus to stimulate many of these unfortunates to become in part self-supporting.

WORK OF THE SISTERS OF ST. PAUL DE CHARTRES.

The work of the sisters of St. Paul de Chartres who serve as nurses at the Culion leper colony continues to be beyond praise. In the out-patient service alone they dress the wounds of more than 400 lepers every morning. Through this self-sacrifice the lepers receive help which money could not buy.

MALARIAL FEVER.

Malarial fever causes approximately 25,000 deaths annually. Considerable progress has been made in its suppression by the free distribution of very large quantities of quinine. It is proposed during the coming year not only to continue such distribution, but to supplement it by literature and by illustrated lectures describing the manner of spread of malarial fever and the means which should be employed to combat it. If possible, arrangements will be made for the sale of quinine, even in very remote regions, at practically its cost to the Government. At the present time quinine pills are sold in some places at the shockingly exorbitant price of 20 centavos per pill! It may prove best to place the drug on sale at all post offices and to make free quinine available for those really unable to pay for it.

SMALLPOX.

An outbreak of smallpox has occurred in Leyte, where more than 300 deaths have already been reported. They have been, practically without exception, among unvaccinated children who had been allowed to remain in this state through the utter shiftlessness of the local authorities. Occurrences of this sort conclusively demonstrate what would be the result were control of sanitary matters in the Philippines left to the Filipinos.

VARILOID.

One hundred and forty-five cases of supposed varioloid were reported in Manila, without a single death. The results of work performed by Major Ashburn, of the Army Board for the Study of Tropical Diseases As They Exist in the Philippine Islands, throws much doubt on the correctness of the diagnoses of varioloid heretofore made. Major Ashburn's inoculation experiments have all resulted negatively, and there seems good ground for the belief that the disease here commonly called varioloid is either chickenpox or some closely allied ailment.

The Director of Health states that there has not been a death in Manila from smallpox, varioloid, or a disease resembling either since June, 1909, a most remarkable result to have achieved.

FINANCES.

The work of the Bureau of Health has been carried out successfully in spite of the fact that the funds available were insufficient. It is now three years since the Legislature has passed an appropriation bill for the current expenses of the

Government, and as a result the Bureau had the same appropriation that it had three years ago plus a small special appropriation sufficient to make it possible to open the Cebu Hospital, but inadequate to keep it in continued operation throughout the new year.

The work of the Bureau has steadily increased along many old lines and new lines have been taken up. The fight against the greatest of all enemies, tuberculosis, has as yet hardly begun. The need of a larger appropriation is very great, but the Bureau will continue in the future to make the most of such funds as are placed at its disposal, as it has done in the past.

It is possible for me here to give only the briefest outline of the work of the Bureau of Health. A very full account of it will be found in the annual report of its Director, which closes with seven specific recommendations. I will quote them, making my own recommendation in connection with each.

1. A tax upon polished rice in order to discourage its consumption, the accomplishment of which object will probably result in the saving of many thousands of lives annually and bids fair to reduce the infant mortality.

I most heartily concur in this recommendation. If carried out it will impose no hardship worth mentioning and the saving in human life, human suffering, and in the efficiency at present lost in the case of persons crippled but not killed by the disease will be enormous.

2. Legislative authority to abate nuisances on private property and to make the cost thereof a lien against the property.

I earnestly concur in this recommendation. The lack of such authority is the greatest remaining difficulty in connection with successful public health work in the city of Manila.

3. Restoration of the privilege to purchase medical and surgical supplies in the open market. The present system is both cumbersome and expensive and prompt relief for the sick is often unnecessarily delayed.

I concur in this recommendation. The purchase of most supplies through the Insular Purchasing Agent is probably advantageous, but the purchase of medical and surgical supplies in this manner is in my opinion distinctly disadvantageous and should be discontinued.

4. A law to make the muzzling of dogs compulsory for several years. The enforcement of such an Act would result in the eradication of rabies which is now responsible for many deaths.

I regret that I cannot fully concur in this recommendation. The Director of Health, in the body of his report, cites four

known cases of human rabies with one death, and to remedy this condition he proposes to muzzle dogs throughout the Islands. While it may be, and probably is, true that there are a considerable number of unreported cases in the provinces, I deem it doubtful whether they are sufficiently numerous to demand such radical action as is proposed, and even were this the case it is in my opinion impracticable at the present time to bring about the effective enforcement of such a law, which would certainly be bitterly opposed by the more primitive of the people who subsist to a considerable extent on game and use dogs in hunting it. In my opinion it would be far better to pass a general act imposing a fairly stiff tax on dogs, fixing a time before which it must be paid annually, providing for the proper tagging of all dogs on which the tax has been paid, and authorizing municipal policemen, Constabulary soldiers, and other persons permitted to buy and use firearms to kill all untagged dogs. In this way the pest of worthless yellow curs which now exists in many municipalities would be abated. Owners of valuable dogs who cared enough for them to pay a tax on them would in most cases give them proper care and would kill them if they showed any sign of rabies. The only harmful result of such an Act would be the occasional killing of a valuable dog from which the tag had been stolen, but the exercise of common sense on the part of the persons killing dogs would reduce this evil to a negligible minimum.

5. Further amendments to Act No. 2156 to permit more central control of provincial sanitation.

I concur in this recommendation. Further experience simply emphasizes the necessity for strong, centralized control if effective health work is to be carried out in the Philippine Islands.

6. An appropriation to construct additional buildings for the insane and to provide for the maintenance of a largely increased number. The present facilities are entirely inadequate to meet the needs of even the most urgent cases of insanity.

As hereinbefore set forth, the need of additional service for the care of the insane seems imperative. I heartily concur in this recommendation.

7. The adoption of a plan by which the lowlands of Manila will be more rapidly filled in and the esteros walled and made more sanitary.

This work should unquestionably be done as rapidly as the other needs of the city and the funds available will permit.

THE BUREAU OF QUARANTINE SERVICE.

Not a single case of cholera was reported from any part of the Philippines during the year. The fact that the Islands were absolutely rid of this disease made it more than ever important that its reëntry should be prevented and in this the Quarantine Service has been completely successful in spite of the fact that there was a serious outbreak in neighboring Asiatic cities. Unquestionably the procedure which made this result possible was the making of stool examinations of all steerage passengers from infected ports.

During the quarantine period from July to November this work was done at the Mariveles station by a special officer from the Bureau of Science; subsequently it was done at Manila. In all 6,997 specimens were examined. Of these 5,259 were also examined for intestinal parasites and it was found that 7.1 per cent contained hookworm, 33.8 per cent contained ascaris, and 17.7 per cent contained trichiuris.

MEASLES.

There were 22 deaths from measles in Manila and 1,915 in the provinces.

Mention was made in my last annual report of the serious results attending the introduction of what is believed to have been a foreign strain of measles into the Philippines. A number of conferences were held with officers of the United States Army with a view to the adoption of measures which would prevent the further introduction of measles by passengers on Army transports and there resulted the following set of regulations:

- (1) The military authorities continue to exercise all the care heretofore exercised to prevent the spread of the disease.
- (2) That in the fullness of precaution, each infected man's locker and his clothing in use be disinfected on the transport as soon as the diagnosis is made.
- (3) That all personnel infected be sent to hospitals and suspects be kept under observation of medical officers, in hospitals if necessary, if belonging or attached to the military service, while civilians infected or exposed be notified to the Bureau of Health, and placed under its control.

BUBONIC PLAGUE.

In my last annual report I had occasion to mention the occurrence at Manila of a case of bubonic plague on June 17, 1912. Cases have continued to occur in the Philippines at intervals

ever since. During the fiscal year there were 74, with 63 deaths. Sixty-five of these cases, with 54 deaths, occurred in Manila, while at Iloilo there were 9 cases and 9 deaths.

Plague was promptly wiped out at the latter place through the intelligent activity of Surgeon Fox and his assistant. The first case occurred on July 5 and the last on September 17, 1912.

At Iloilo, as at Manila, the disease did not begin along the water front, nor among persons who had been away from the city, or who would have been likely to come in contact with others arriving on foreign ships. It is believed to have been introduced either by bedbugs carried ashore in cargo or by rats hidden away within cargo containers. The fact of its introduction at two Philippine ports in spite of the efforts of the Quarantine Service clearly indicates the necessity of further refinement in quarantine methods. The Manila wharves are rat proof, and cats make short work of any rats which land upon them, as the latter cannot find hiding places. Efficient rat guards are placed on all mooring ropes. Gangways, cargo chutes, etc., are raised when not in actual use; vessels from plague-infected ports are fumigated with sulphur at least twice annually and ships carrying rice are fumigated upon each trip.

In April, 1912, after cases of human plague had been detected at quarantine upon arriving vessels, all ships from Hongkong and Amoy were also fumigated on each trip. There is always a possibility that in baskets of eggs, garlic, onions, and similar foodstuffs as well as in cases of glassware, chinaware, and bottles packed in hay or straw, rats may find shelter. The number of such cases is so large as to make it impracticable to unpack all of them in searching for rats, and it is not apparent at this time just how the difficulty can be met.

It has been determined that both bedbugs and red ants escape during ordinary fumigation by crawling into interstices of wood and into similar hiding places where sulphur fumes do not penetrate. It is possible, and indeed probable, that both of these kinds of organism may assist in transmitting plague. Certainly both bite human beings, and smears from the intestinal contents of bedbugs taken near plague patients have shown plague-like bacilli.

SHIP SANITATION.

The enforcement of stringent regulations relative to the sanitation of ships has made interisland travel not only far safer, but far more comfortable, than heretofore.

BUILDINGS AND EQUIPMENT.

The buildings and equipment of the several stations have been maintained in good repair throughout the year with the exception of the disinfecting barge at Iloilo, which was run into by a steamer and badly damaged. It had previously deteriorated to such an extent that repairs are hardly practicable. Every effort is being made to obtain a site on land for the Iloilo disinfecting plant.

The quarantine station buildings at Cebu were badly damaged by the great typhoon which devastated that city, but have been repaired. A contract has been let for the construction of a concrete wharf 300 feet long at Mariveles. This will accommodate vessels drawing 30 feet. The old wooden pier at that place is rapidly deteriorating. The five launches of the Bureau have been maintained in good condition, but all are getting old so that the annual repair bill is considerable. Funds are available for the purchase of one new launch.

Full details of the work of the Bureau of Quarantine Service will be found in the annual report of its Director.

BUREAU OF FORESTRY.**EFFORTS TO SECURE REMEDIAL LEGISLATION.**

Under existing law forest charges are based on the volume of timber in the round, but if a licensee elects to manifest his timber after it is sawn he may do this by adding to the volume of the timber thus manifested 15 per cent to cover the loss in sawing due to slabs, sawdust, edgings, and waste of all kinds whether necessary or unnecessary. This percentage was fixed at a time when most of the lumber was cut by hand with very thin saws, and when the labor involved in getting out logs with the primitive methods then in vogue was so great that lumbermen exercised all possible care to avoid unnecessary waste. The kerf of modern saws is much greater than that of those formerly in use. Logs are now brought to the mill by logging railways and skidding engines at a comparatively small cost, and as one result with few exceptions the mills of the Islands are grossly wasteful in the matter of slabs, edgings, etc. This waste costs the lumberman nothing in Government charges if he pays on sawn lumber, while the Government also loses charges on lumber which rots, burns, or is stolen or destroyed by insects in the yards before being manifested, as well as on that which dishonest lumbermen may smuggle off to market without manifest-

ing it at all. Furthermore, the Government gets nothing on logs carelessly stored along or in streams, and carried to sea during heavy floods, nor on those hauled to the beach and washed away during storms.

Measurement in the round would impose on lumbermen the necessity of paying for the timber which they actually cut, would make them more careful to utilize that for which they had been obliged to pay, and would eliminate losses of the other kinds above mentioned. Measurement in the round is, furthermore, quick and simple. If this system were adopted, the employees of the Bureau of Forestry alone would be able quite accurately to measure the timber used by the several mills of the Islands. The force at the disposal of the Bureau is entirely inadequate to measure the sawn lumber produced at these mills and at the same time to perform its other duties. The Bureau of Internal Revenue, which has charge of this work, in which the Bureau of Forestry can intervene only when its officers or employees are appointed internal-revenue agents, makes no pretense of measuring sawn lumber at the mills, but allows mill owners to have their own employees manifest their lumber, with no other check on their honesty than that afforded by the shipments of lumber received at the more important market centers.

A bill providing that all Government timber should be measured in the round passed the Commission. Although the fact that it was under discussion was publicly known, not a single protest against it was received by me. It was quietly killed in the Assembly.

I renew my protest against the method of measurement at present in vogue. It leads to heavy losses in the dues which should be collected, and places a premium on carelessness and dishonesty.

FILIPINO FOREST EMPLOYEES.

The Forest School at Los Baños is steadily turning out well-trained Filipinos for the Forest Service. During the past year 26 of its graduates have been appointed rangers.

FOREST CONCESSIONS.

Only three forest concessions, or exclusive license agreements as they are more popularly called, were granted during the year: One for a tract on the shores of Dumanquilas Bay in southern Mindanao; one for a forest tract in Tayabas and Ambos Cama-

rines; and one covering certain mangrove swamps in Masbate. No sawn timber will be cut under the last-named concession, but the mangrove wood will be utilized for fuel. The development of the other two concessions will mean the establishment of two new lumber enterprises of large importance, as under the terms of the agreements modern equipment of the best type must be used and the outputs must be large.

PROPOSED NORTHERN NEGROS FOREST RESERVE.

In the northern half of the Island of Negros there is a forest estimated to contain some eight billion feet of merchantable timber. It is one of the finest stretches of unbroken woodland to be found in the Philippines, the elevation of the forested land above sea level being from 100 to 8,000 feet. The concession areas of the Insular Lumber Company and the Negros-Philippine Company are located in this forest which covers some 600 square miles of almost uninhabited territory, much of which is rough, precipitous, and suited only for permanent forest cover. In it are streams of the utmost importance to the neighboring fertile lowland plains. Existing industries and the much more important industries which will doubtless develop later in this rich agricultural region must depend on this forest for timber, firewood, and other forest products, while at the present time about 15,000,000 board feet of lumber are supplied by it to the general Philippine market yearly. It is obviously of vital importance that logging operations should be conducted in such manner as to improve rather than to destroy it and that the *caingin* maker should be rigorously excluded. I have therefore approved the setting aside of this area as a forest reserve. The necessary preliminary work has been nearly completed and recommendation will soon be made to the Governor-General that a formal proclamation establishing the reserve be issued.

ATIMONAN FOREST RESERVE.

On January 28, 1913, the Atimonan Forest Reserve was created by proclamation of the Governor-General. This insures the protection of a very fine tropical forest readily accessible to tourists because an automobile road runs through it, and of great importance to a thickly settled region which is, and must continue to be, dependent upon it for forest products of all kinds. Four municipalities now draw upon it for timber, firewood, and other forest products.

THE PROPOSED SALINAS FOREST RESERVE.

At Salinas, in the Province of Nueva Vizcaya, there is a great salt spring where enough salt is manufactured to meet the needs of the inhabitants of central and northern Luzon. The spring water is boiled down in great kettles. The available firewood in the vicinity of the spring has been ruthlessly destroyed. I deem it a matter of great importance that a forest reserve should be established covering the land in the vicinity of this spring, not only to the end that the small remaining supply of firewood may be promptly conserved, but to facilitate reforestation and thus provide fuel for the future. I have, therefore, approved the establishment of such a reserve, at the same time providing for the running of the spring water through numerous brush piles before it is boiled, to the end that the sun and wind may do the greater part of the evaporation and that fuel may be used only after a saturated brine has been produced.

LICENSES.

Four thousand and ninety-five licenses were issued as against 3,495 for the previous year, showing that the public forests are being utilized to a steadily increasing extent. One thousand two hundred and forty-eight of these were gratuitous licenses for personal use and 50 were gratuitous licenses for public works.

COMMUNAL FORESTS.

There is a steadily increasing demand for the setting aside of communal forests for the benefit of the several municipalities. Forty-five were established during the year and 11 more have been examined and will be established in the near future. Twenty-nine applications are pending examination. These communal forests are now distributed between the several provinces as follows:

Albay	2	Leyte	3
Ambos Camarines	7	Moro	1
Antique	1	Mountain Province	5
Bataan	13	Misamis	6
Cagayan	1	Negros Occidental	3
Capiz	4	Negros Oriental	3
Cebu	1	Nueva Ecija	2
Iloilo	1	Pangasinan	16
Ilocos Norte	12	Sorsogon	3
Ilocos Sur	26	Tarlac	2
Isabela	1	Tayabas	12
La Laguna	3	Zambales	11
La Union	9	Total	148

CAIÑGINS.

In each preceding annual report it has been necessary to call attention to the destructive *caiñgins*, or illegal forest clearings, which annually result in enormous damage to the Philippine forests. Progress in preventing them has been made during the past year, but it is hardly too much to say that it has been made in spite of the prosecuting officers (fiscals) rather than with their assistance, which has seemed in many cases, even when given, to have been furnished only as a result of explicit orders from official superiors. The district forester in charge of south-central Luzon says:

In Tayabas 26 illegal *caiñgins* have been reported on and complaints in the different cases filed with the provincial fiscal. In Mindoro 25 *caiñgins* have been reported on and the complaints and necessary documents filed with the provincial fiscal. In none of these cases have reports been received from the fiscals concerned, and it is my belief that little attention is paid to such complaints by fiscals.

The forester in charge of the district of the Visayas says:

There have been reported to the provincial fiscals of this district during the year 96 cases of violations of the *caiñgin* law, and the double charges on the timber invoiced in this connection are ₱631,539.32. Of these cases, 80 were sent to the provincial fiscal of Capiz, invoices for which total nearly ₱620,000. No advice has been received to show that any of these cases have been concluded. One case, the invoice of which amounts to ₱10,644.80, was sent to the provincial fiscal of Iloilo Province, and action has been taken and reported showing that the accused was fined ₱10. This same fiscal reported that a ₱10 fine has been imposed in connection with each of two cases referred to his office during the fiscal year of 1911-12. The invoices of one of these cases amounted to ₱1,033.20 and the other to ₱129.52. Seven cases, the invoices for which amount to ₱531.88, were sent to the fiscal of Leyte, who has reported that the papers had been referred to the justices of the peace of the various municipalities where the *caiñgins* were made. Eight cases, invoices for which total ₱1,183.38, were sent to the fiscal of Negros Occidental, and I am glad to be able to report that the courts have taken prompt and decisive action. * * *

In Capiz there are now pending over 220 cases, most of which have been in the hands of the provincial fiscal for nearly a year and no results have been reported.

The provincial fiscal of Negros Occidental, on the other hand, has been gratifyingly active. In six of the cases referred to him action has been taken, resulting in the imposition of adequate fines together with sentences of imprisonment in each case of from ten to thirty days. Were fiscals in general similarly efficient *caiñgin* making would soon become unpopular. Without the effective coöperation of prosecuting officers the Bureau of Forestry is powerless to prevent the present wanton destruction

of one of the most important natural resources of the Philippines. The Attorney-General is coöoperating with the Bureau in efforts to check this destruction. On May 29, 1913, he issued a circular letter to all provincial fiscals instructing them to prosecute vigorously all cases of violation of the provisions of the Forest Act relative to *caīngin* making and to endeavor to see, after consultation with the officer of the Bureau of Forestry, that every available proof is presented so that adequate punishment is meted out to all violators of the Forestry Laws. It is hoped that as a result of this order there will be great improvement in the enforcement of the law during the coming year.

STUDY OF MANGROVE SWAMPS.

The Bureau has devoted a considerable amount of time to the study of Philippine mangrove swamps and has found that they are more extended than has heretofore been supposed. Those of Mindanao alone are estimated to aggregate to 130,000 hectares, while there are other important areas in Ambos Camarines, Albay, Sorsogon, Samar, Luzon, Mindoro, and Palawan. Numerous swamps of some importance, though smaller than those of the above-mentioned islands, are found elsewhere.

The wood of several mangrove species gives promise of great durability. There are three different species which are known to make excellent piling and it is probable that there are several others which are suitable for the same purpose. Durability tests of bacauan railroad ties are now under way. In a number of regions in the Philippines bacauan is planted in solid stands and is eventually cut for firewood. As a rule, mangrove swamps in the vicinity of large centers of population are now badly overcut, while those in more remote regions are in a virgin state. Accurate knowledge of the location and area of all important swamps is obviously a matter of much importance to the public.

INVESTIGATION OF NIPA SWAMPS.

The leaves of the nipa palm are extensively used in the construction of the roofs and sides of houses of so-called "light materials" in the Philippines, and the juice obtained from the fruit stalk is the principal source of the alcohol manufactured in the Islands. Many of the swamps are privately owned and are more or less carefully cultivated. Others are situated on the public domain. It seems probable that the area covered with nipa in the Philippines is considerably smaller than has heretofore been supposed. While it is true that the commercial manufacture of the products of the nipa palm can only be conducted

profitably upon a large scale, necessitating the utilization of much larger areas than can be purchased, even by corporation, under the provisions of existing law, this is really no obstacle to the utilization of the public nipa swamps as the Bureau of Forestry can grant exclusive license agreements for the collection of nipa products from such areas. Up to the present time no tax has been imposed on the sap or leaves gathered from public nipa swamps because these products have not been harvested on such a large scale as to make it worth while to attempt to collect taxes on them. The authorized tax of 10 per cent of the market value would of course be levied were the sap and leaves collected on a commercial scale.

REFORESTATION.

The subject of reforestation is one of great practical importance to the Philippines, especially in such islands as Cebu where the *caingin* maker has almost completely destroyed the original forests so that even firewood is expensive and difficult to obtain. The Bureau of Forestry has been conducting interesting experiments in the growing of ipil-ipil and mandre cacao. The former grows readily in grass land which has been burned over, and attains a height of from 12 to 15 feet in a year, ultimately reaching a diameter of 6 inches and a height of 30 feet. After a stand has once been established it can be completely cut over at frequent intervals without danger of destruction. Well-established stands are claimed to produce as much as 10 cords of firewood annually per acre.

LACK OF SUFFICIENT BUREAU TRANSPORTATION.

Forest work in the Visayas and in the districts of Mindanao and Sulu is very greatly hampered by lack of transportation. The value of the time lost by forestry officers while waiting for boats, to say nothing of the unfortunate consequences of long-continued delay in their prompt arrival when their presence is necessary, would compensate for the cost of purchase and operation of the two seagoing launches which are needed in order to remedy the deficiency. I recommend that these launches be obtained and placed at the disposal of the Bureau.

FOREST RECONNAISSANCES.

Among the most important things accomplished during the year by the Bureau of Forestry has been the making of forest reconnaissances covering the Island of Basilan, and a very large tract in northern Mindanao. The information obtained is of

the greatest practical value to persons contemplating the establishment of lumber industries in these regions.

Very careful attention has been given to increasing the efficiency of the office force and the field inspection force of the Bureau and the results obtained have been most satisfactory.

INADEQUACY OF THE FIELD FORCE.

The inadequacy of the existing field force of the Bureau of Forestry properly to supervise cutting operations in the forests of the Philippines is too well known to require discussion. I have previously strongly urged upon the Legislature the desirability of establishing a definite relationship between the total annual Government collections on forest products and the annual appropriation for the Bureau. There is obvious interdependence between the extent of cutting operations and the size of the force necessary to control them. Furthermore, the Bureau of Forestry would thus be given a direct interest in collections which would be likely to result in their material increase.

Attention is invited to the fact that every previous increase in the force of the Bureau made in recent years has been followed by a prompt increase in revenue. I renew my recommendation that 60 per cent of the total Government collections on forest products be appropriated annually for the expenses of the Bureau of Forestry during the succeeding year.

A detailed review of the work of the Bureau will be found in the full and interesting report of its Director.

BUREAU OF SCIENCE.

CHOICE OF A DIRECTOR.

At the time of Doctor Freer's death two alternatives confronted me in the matter of making recommendation as to his successor.

One was to attempt to secure from the United States a candidate with an international reputation, comparable as nearly as possible with that of Doctor Freer, and recommend him for appointment. This procedure was open to the objection that it was extremely doubtful if another such man could be found who would be willing to give up original research and devote his energies to managing the very large business affairs of the Bureau and to planning and coördinating the research of others. Apart from the difficulty involved in finding a man who combined the requisite business ability and scientific attainments there was the further fact that any possible candidates were

likely to be university men, unaccustomed to, and impatient of, the restrictions necessarily imposed by our Civil Service Law and rules and by the rulings of the Insular Auditor. Finally it was obvious that such a course would result in discouragement to the men who had been steadily working up in the Bureau as a result of the faithful and efficient performance of their duties.

The other alternative was obviously to appoint one of the latter group of men. Among them there was no one available whose reputation as an investigator equaled that of Doctor Freer, but all of them were familiar with and accustomed to local conditions.

Dr. Alvin J. Cox had for some time been assisting Doctor Freer in directing the work of the Bureau and, in fact, at Doctor Freer's own suggestion had been put in training to succeed him. It was my opinion that he should be appointed Acting Director and given an opportunity to make good. I so recommended, and my recommendation was favorably acted upon by the Acting Governor-General. Doctor Cox has made good. I have recommended that he be appointed Director of the Bureau, and that Dr. H. D. Gibbs, the next man in rank below him, be appointed to the position of Assistant Director thus made vacant.

THE BIOLOGICAL LABORATORY.

Dr. Richard P. Strong, chief of the biological laboratory, went on leave in July, 1912, on account of very serious illness. He has since resigned to accept a position as chief of the department of tropical medicine in the Harvard University Medical School. Dr. B. C. Crowell, pathologist, has been detailed for one-half of his time as chief of the department of pathology and bacteriology in the College of Medicine and Surgery. Mr. Ariston M. Guzman has taken leave and has gone to take up work in the Bennet Medical College, Chicago. The resignation of Mr. Porter Leakey was accepted April 15, 1913, and three assistants in the routine laboratory have left during the year and have been replaced by new men. The position of chief of the biological laboratory is still unfilled, and the laboratory has been short-handed throughout the year.

Its routine work steadily increases. Branch laboratories are maintained at the Philippine General Hospital and at Bilibid Prison in order promptly to handle the work of these institutions. The reappearance of bubonic plague has necessitated the examination of hundreds of thousands of rats and the bacteriological diagnosis of a number of cases of suspected plague in human beings.

For the year 1912 there was an increase of 45 per cent in routine examinations over the previous year. The following table shows the increase for 1913 as compared with 1912:

Nature of examination.	1912	1913
Blood	3,951	23,450
Blood culture		226
Widal test		388
Wassermann test		727
Urine		6,974
Sputum	3,925	5,770
Faeces	22,733	34,530
Gonococci	15,971	20,522
Leprosy		848
Plague		45
Rats for plague		(a)
Rabies		11
Necropsies	59	130
Historical examination	455	606
Water	742	1,077
Miscellaneous	4,594	57,916
Total	51,941	153,220

^a Included under miscellaneous.

Original investigation has, of course, been greatly hampered by the fact that the laboratory was short-handed and by the increase in routine examinations. Nevertheless, important research work has been done on bubonic plague, cholera, bacillary dysentery, leprosy, entamoebic dysentery, as well as on various other diseases. One of the most important pieces of work has been a study of the part played by the domestic pig as a carrier of infection.

A mysterious disease which caused some fatalities in Ambos Camarines was studied on the ground. No positive results were obtained prior to its disappearance, except to demonstrate that it was neither plague nor anthrax.

LOCUST EXTERMINATING BACTERIUM.

Experiments with the supposed locust-exterminating bacterium, *Coccobacillus acridiorum* of D'Herelle, made in co-operation with Mr. C. R. Jones of the Bureau of Agriculture, were negative in their results. If this infection has really succeeded elsewhere its failure here may be due to different meteorological conditions or to a difference in the species of locust.

SERUMS AND VACCINES.

The amount and variety of the work performed by the Bureau in the preparation of serums and vaccines is probably not generally understood. I quote the following summary statement relative thereto from the report of the Acting Director:

The preparation of variola vaccine (vaccine virus) was continued throughout the year. Cholera prophylactic, plague prophylactic, gonococ-

cus vaccine, staphylococcus vaccine, typhoid vaccine, and streptococcus vaccine were prepared in moderate quantities. Anthrax vaccine, tuberculin (both human and bovine), and mallein were continually kept on hand.

Antidiphtheritic, antitetanic, anticholera, antityphoid, antiplague, anti-dysenteric, and antistreptococccic sera were made in quantities sufficient to supply the demand.

Typhoid, paratyphoid, and cholera reagents (killed cultures) for agglutination; agglutinating sera, in liquid and in dried form, for the purpose of diagnosing infectious diseases and identifying bacteria; as well as normal sera of horse, ox, sheep, and goat were always kept on hand. Other sera, such as those of dog, cat, rabbit, and guinea pig, are supplied on request. Sterile blood or washed blood corpuscles of horse, ox, sheep, goat, rabbit, and guinea pig are also furnished on request.

RABIES.

The work on rabies was continued throughout the year. Thirty-five patients applied for the Pasteur treatment.

BOTANY.

Botanical work has been actively pushed in spite of the fact that Mr. E. D. Merrill, chief of the botanical section, was detailed in July, 1912, to serve as associate professor of botany and acting head of the department of botany in the College of Liberal Arts, and has since given half of his time to that work.

Twelve thousand eight hundred and seven specimens have been poisoned, mounted, and distributed into the herbarium. Some 39,200 duplicate specimens have been distributed to various institutions and to individual botanists either in exchange for other specimens or for purposes of identification. More than 10,000 identifications have been made, mostly of Philippine plants, but including also plants from Guam, New Guinea, Java, Formosa, and Borneo. Identifications have been performed for the Bureaus of Education, Forestry, and Agriculture. A large additional amount of practical work, which will be found fully described in the report of the Bureau of Science, has been performed during the year.

ENTOMOLOGY.

Much time has been given to field investigations, to the collection and study of injurious insects at the call of private individuals or other bureaus of the Government, and to the practical work of exterminating mosquitoes, flies, and other insect pests in regions where they were doing serious harm. Large additions have been made to collections and more identifications have been made than during any previous year. The division of entomology is peculiarly fortunate in now having six of the world's leading specialists as coworkers.

FISHERIES.

While absent on leave in the United States Mr. Alvin Seale visited some of the large sardine canneries and endeavored to arouse some interest in the establishment of canneries in the Philippines. Samples of the Philippine sardines and anchovies have been requested and have been furnished.

The demand for the thin transparent shells so extensively used in this country as a substitute for window glass has increased. Requests for these shells have been received from Australia, the Hawaiian Islands, and the United States, and have been forwarded to Manila dealers. The Bureau has planted some shells in a suitable portion of Manila Bay.

Another button factory has been opened in Manila and the local demand for shells for use in button manufacturing has materially increased. The price for the "top" shell, for instance, has advanced from ₱8 to ₱20 per picul. This has created a tendency to gather young and immature shells.

The black-lip pearl shell which heretofore has not been much used is now being taken in very large numbers for button making.

For the first time in the history of the Islands the "scoop" or "ear" pearl shell is being gathered and made into buttons. This shell was considered valueless until Mr. Seale called attention to it.

The need of legislation prohibiting the taking of undersized shells is evident, as is the desirability of taking the control of the pearl beds in the Christian provinces from the municipalities and placing it under one of the departments of the Insular Government. These beds should be charted, and one-third of them closed in rotation each year in order satisfactorily to maintain the pearl industry and to give the shells time to mature.

The black bass brought from the United States to Benguet continued to flourish and fishing for them is now permitted there under regulations compelling the return to the water of all individuals measuring less than 10 inches in length. Black bass have also been successfully transferred to the spawning ponds in the lowlands, where they are alive and in fine condition and will doubtless soon spawn.

Two dozen of the mosquito-eating fish which have proved valuable in various regions for use in combating mosquitoes

were brought by Mr. Seale from Honolulu in January and placed in one of the laboratory aquaria, where they have multiplied rapidly. Two hundred have been planted in the swamps and fish ponds near Manila and about a hundred remain on hand. It was determined by actual observation that one of these little fish ate 500 mosquito larvae in twenty-four hours. It is therefore to be hoped that their generalization in the Islands will be valuable.

CHEMISTRY.

In this department of its work the Bureau has also been short-handed during the year. The amount of work done has, nevertheless, been somewhat larger than that performed during the previous year. The following table illustrates the growth of the chemical work:

Nature and quantity of chemical work.

Nature of material.	Number of samples tested.			
	1910	1911	1912	1913
Rocks and minerals.....		25	46	12
Soils, fertilizers, cements, clays.....	3,342	3,738	8,636	9,617
Metals and alloys.....	24	46	36	45
Road materials, stone, gravel, sand, and concrete.....		440	248	130
Water.....	82	164	146	197
Calorimeter determinations of fuels.....		29	9	31
Boiler tests of coal.....		10	2	
Standardizations of weights and measures (sets).....		1,066	990	1,137
Coal analyses.....		154	20	58
Paint.....				46
Miscellaneous ^a	248		248	91
Total.....	8,696	5,672	10,881	11,854

^a Work classified under "Miscellaneous" in 1910 is largely segregated in 1911, 1912, and 1913.

CEMENT TESTING.

The number of samples of cement submitted for physical testing increased from 7,966 for 1912 to 9,617 for 1913. The adoption of the new cement specifications has increased the work involved in making tests by about 50 per cent. Samples have come in very irregularly. Sometimes 800 or 900 are received in two or three days, and then will follow a period of weeks when few, if any, come in. The sudden submitting of a very large number of samples is often followed by complaints that the laboratory does not do work promptly. If we maintained a force sufficiently large immediately to dispatch a volume of work like this it would necessarily be idle much of the year. The capacity of the laboratory has been increased and

will soon reach 65 samples per day, or 16,250 per year of two hundred and fifty work days. With a little more care and judgment on the part of those who submit cements for testing, the temporary swamping of the working force can readily be avoided.

THE TESTING OF ROAD MATERIALS.

There is a growing interest in the testing of road materials. Formerly it was customary to request only an abrasion test. Now engineers demand tests of hardness, toughness, cementive value, and fracture, ask for classification, and are also giving consideration to the chemical and physical properties of tars, asphalts, bitumens, and oils intended for use on the roads.

ABSTRACT RESEARCH PROBLEMS.

A very large number of abstract problems involving chemical research has been submitted to the Bureau. In many instances their solution has made it necessary to devise satisfactory new methods of analysis. The more important of these problems are listed in the report of the Bureau of Science, and their variety and complexity are worthy of note.

The subject of the corrosion of metallic surfaces exposed to the climate, and of coatings intended to protect them, is of peculiar importance here. Large sums have been lost through the rapid deterioration of metallic structural materials, although covered by protective coatings which apparently give good results in other parts of the world. The Bureau has been in active correspondence with manufacturers as well as with local users of such materials, and is investigating the value of Philippine vegetable oils, gums, and resins in this connection.

Some samples of galvanized-iron roofing corrode very rapidly; others last for many years with little apparent deterioration. The cause of this difference should be ascertained.

Samples of soft rock from Nueva Ecija, submitted by the Bureau of Public Works for valuation as a road material, proved to be hardened clay, from which the Bureau of Science made very good vitrified brick.

The investigation of raw materials to determine their suitability for the manufacture of lime, hydraulic, Roman, and Portland cement, and sand-lime brick has been continued, and materials which have proved theoretically satisfactory will be subjected to the conditions of actual manufacture in a new lime kiln of 500 pounds capacity which has just been completed.

ASSAY WORK.

Although private assay offices have been installed at the Colorado Mine, Masbate, and the Headwaters Mine, Benguet, and although a number of quartz prospectors have transferred their attention to placer deposits, the number of assays performed by the Bureau continues to increase.

PRIVATE DEMAND FOR SERVICES OF GEOLOGISTS.

There has been a continued demand for the services of the geologists of the Bureau for the making of field investigations of a strictly economic nature desired by private individuals and corporations. The Bureau employees are practically the only men available in the Philippines for this work. All such investigations actually undertaken have been carried on to discover the economic possibilities of various deposits and thereby to aid in advancing the mining industry.

LIBRARY.

Excellent progress has been made toward the permanent organization of the library and in the improvement of methods of routine library work. It has been facilitated by moving into the new quarters which afford room for shelving books promptly. Well-lighted stacks conveniently situated with reference to the charging desk reduce the labor heretofore required in connection with books taken out and returned and enable the assistant in charge actively to engage in other work.

Three thousand eight hundred and fifty-two bound volumes were added to the library. Of these 1,690 resulted from the binding of publications already on hand, while 2,162 were new accessions.

All new material has been classified promptly upon its receipt, and unclassified material of a miscellaneous character has been reduced in amount. There is little unclassified scientific material remaining. The better-trained Filipino assistants are showing great interest in the subject of classification and are becoming very helpful in this branch of the work.

PHOTOGRAPHS.

The invaluable collection of Government photographic negatives, which now includes 16,200 5 by 7 inch and 1,250 8 by 10 inch negatives, has been moved into the library and has been placed in a readily accessible location in order to give it more adequate protection against fire.

CUTS.

The Bureau of Science collection of cuts numbering some 3,800 has been carefully identified by comparison with the prints, and numbered with steel dies in such a way that this record cannot be lost.

RESERVE STOCK OF THE PHILIPPINE JOURNAL OF SCIENCE.

To protect against possible loss by fire, 36 complete sets of the Philippine Journal of Science have been placed in the library as a reserve stock. They are stored in insectproof and water-proof boxes.

USE OF THE LIBRARY.

The use of the library steadily increases. It is now open during longer hours than heretofore. Its tables accommodate comfortably 25 to 30 readers and there is space for an additional table to accommodate ten or a dozen more.

POWER PLANT.

Probably few residents of Manila, even, realize the size of the power plant of the Bureau of Science and the manifold uses to which it is put. It supplies not only the Bureau of Science building but the Philippine General Hospital buildings and the College of Medicine and Surgery with electric current for operating incandescent and arc lights, fans, refrigerating machines, ice machines; also for the operation of air compressors, vacuum pumps, motor used in ventilation and water circulation systems; ore crushers, pulverizers, and grinders; water pumps; gas scrubbers; centrifuges; testing apparatus for road material; electric elevators; X-ray apparatus, radiographic apparatus, pantostat, cauterizers, radiometer, keratometer, ozonizers, electric furnaces, and incubators; ultra-violet light sterilizing apparatus; liquid-air machine; electric annunciators; induction coils; ultra-violet photomicrographical apparatus; current for charging electric ambulances, automobiles, storage batteries, etc.; live steam for operating steam tables, urns, boilers, and kettles; hot-air baths; autoclaves; pumps, engines; automatic stills, hot-water tanks, etc.; and gas for students' and laboratory burners, gas stoves, and gas engines.

The installation of a new 75-horsepower boiler has increased the boiler capacity to 225 horsepower in one battery of three 75-horsepower boilers.

With the installation of a producer gas engine driven dynamo, the total rated capacity of the electric generators in the engine room is 125 kilowatts. The most economical operation of any electrical generating unit is to run at its record capacity. The Acting Director of the Bureau has displayed great ingenuity in so adjusting the work for the twenty-four hours that this may be done. The charging of electric ambulances and automobiles, of storage batteries, etc., is carried on when the load resulting from other work is comparatively light.

PRODUCER GAS PLANT.

The new producer gas plant is a great success. The dynamo driven by the gas engine is unquestionably far more economical as a power producer than are the units driven by steam. Exact figures of the cost of the power furnished by this plant are in preparation.

PUBLICATION.

An immense amount of valuable material has been published in the Philippine Journal of Science. A list of the papers there issued will be found in the report of the Acting Director of the Bureau of Science. The largest single publication issued during the year is "The Flora of Manila," a book of 490 pages. It is of especial value to teachers and students of botany, as it gives in compact form means of determining most of the common plants to be found in and about the towns of the Philippines. It must, I think, be considered the most generally useful botanical publication yet issued by the Bureau.

There has been a 30 per cent increase in paid subscriptions for the Philippine Journal of Science during the year. This demonstrates the increasing appreciation in which the Journal is held.

In this brief review of the work of the Bureau of Science I have necessarily left without so much as mention many of its important phases. They are, however, fully described in the report of the Acting Director and I recommend as of especial interest and importance what is there said relative to the Iloilo sugar testing laboratory and the sugar mills in the Visayan Islands. The great financial importance of chemical control of sugar mills is very fully demonstrated.

An especially interesting and important feature of this report is a past history of the development of the Bureau and a summary of the more important results which it has accomplished up to the present time.

THE WEATHER BUREAU.

CHANGES IN PERSONNEL.

Father George M. Zwack, who for nearly ten years has served most acceptably as secretary of the Weather Bureau, was obliged by increasing ill health to retire. His place has been filled by Father Robert E. Brown, who was an officer of the Bureau from 1902 until 1907, but during the past six years has been studying in England, France, and Germany.

The Director of the Bureau, Father José Algué, returned to the Islands on November 15, 1912, after an absence of somewhat more than six months. He had been compelled to leave the Islands by ill health, but had improved the opportunity afforded by taking this leave to visit England, Cuba, and the United States in order to adapt his famous barocyclonometer to use in the North Atlantic. He succeeded in doing this, thus rendering a great service to vessels exposed to the danger of encountering the West Indian hurricanes. Father Algué's barocyclonometer has now been officially adopted by the Navy Department of the United States for use on all the warships of the North Atlantic Squadron.

WORK OF THE CENTRAL OBSERVATORY.

Dissemination of knowledge of weather conditions has been rendered more effective by the daily posting of weather maps in the Ayuntamiento, the customhouse, and at Fort Santiago.

The year has been remarkable for the number and severity of its typhoons, several of which have been very destructive. That of October 19 killed some 400 people in Cebu alone, and inflicted very great property losses. Cebu is seldom visited by typhoons during October and the damage and loss of property were needlessly great because the people paid little attention to the warnings sent to the town by the local observatory.

An innovation has been introduced in the distribution of typhoon warnings at Manila. They are now sent direct by a messenger to shipping firms which are especially interested. This service has been highly appreciated and will be continued. Through the courtesy of the chief signal officer of the Philippines warnings are sent out by wireless from Corregidor so that vessels properly equipped may receive them at sea. Typhoon signals have been established at Zamboanga and the necessary warnings are now telegraphed regularly to that port. One hundred and thirty-one warnings were cabled to foreign observatories as against 122 during the previous year.

SEISMIC DEPARTMENT.

The new seismic station at Ambulong, on the shore of Taal Lake, has been completed, equipped, and opened for work. In 1912 the Philippine Legislature appropriated funds for the purchase of a suitable tract of land, for a reinforced concrete building, and for its equipment with suitable apparatus so as to facilitate the observation of the periods of activity of Taal Volcano with a view to the issuing of seasonable warnings and the prevention of such loss of life as occurred during the great eruption of 1911. The observatory is well equipped and should prove very useful.

A motor launch has also been provided in order to facilitate visits to the volcano by observatory employees and by the general public, to warn towns around the lake in case of danger, and to aid in removing the inhabitants if necessary.

Were it not for what Father Algué rightly calls "the truly execrable trail, misnamed road, from Tanaun to Ambulong" a large number of tourists would now visit Taal Volcano. If the road were in decent repair the journey could be made from Manila to the volcano and return in one day. This is not now possible. Even the transportation of the instruments to the observatory was rendered difficult and hazardous because of the detestable condition of this road. Immense sums are being spent on road construction elsewhere in the Islands, and it seems inexplicable that this little stretch of road, which would be used by so many people were passage over it not attended with risk of limb if not of life, should be left in its present state of utter neglect, and indeed that a new road should not be constructed.

The year has been one of great seismic activity. Three hundred and ninety-six disturbances were registered, of which no less than 254 pertain to earthquakes originating in or very near to the Archipelago. There were 135 earthquakes at a distance of from 1,000 to 5,000 kilometers and 7 originated at a still greater distance, including the great Turkish earthquake and 2 in Alaska. The eastern portion of Mindanao was especially afflicted. The Province of Sorsogon suffered from destructive disturbances which were fortunately confined to limited areas and did not cause loss of life.

On March 14 there was an earthquake of exceedingly great amplitude, lasting for the extraordinary time of two minutes, in Davao, Cotabato, and the Agusan River Valley. From the

18th to the 30th of April a series of earthquakes, numbering 84 in Butuan and 63 in Surigao, greatly alarmed the inhabitants of these regions but no very serious damage was done.

PAYMENT FOR CERTAIN OVERTIME WORK RECOMMENDED.

Father Algué states that it often happens that the chief forecaster and the observers are forced to remain on duty for ten to fourteen hours per day for three or four days in succession. At the present time they receive no compensation for such overwork involving, as it does, considerable strain. Moreover, observers must be on duty on Sundays and on all official holidays. He recommends that a provision of law be enacted similar to the one in force covering overtime in the Customs Service, so that work of this character may be paid for. I concur in this recommendation.

Father Algué calls attention to the fact that the limiting of the hours of the telegraph service to two hours in the morning and two in the afternoon on Sundays and legal holidays often very seriously interferes with the work of the Weather Bureau, as it is frequently impractical to receive and decipher the weather telegrams from the outlying stations, trace the isobars, and study the resultant map in time to send out warnings before the close of the telegraph office, which may mean a delay of twenty hours in the dispatching of typhoon warnings and may thus seriously endanger life and property. This difficulty would be largely remedied if the hours of service could be prolonged from 7.30 to 10 a. m. and from 2.30 to 5 p. m. I think that this subject should be given serious consideration.

BUREAU OF LANDS.

It has proved practicable materially to increase the number of Filipino employees of this Bureau. All vacancies are filled by Filipinos so far as possible. The increase in the proportion of Filipino employees involves increased work of supervision by the Americans in the service, and justifies corresponding increase in the salaries of some of them, as continuity of service on the part of such employees means increased economy and efficiency, because they become more capable of supervising Filipinos as they gain in knowledge of Filipino character through experience.

FRIAR LANDS.

Friar land work has been more satisfactory than during any previous year. Its results as compared with those of the fiscal year ended June 30, 1912, are as follows:

Results of work accomplished on friar estates during the year as compared with the previous year.

Increased area occupied 1 per cent of total area, or hectares	1,545
Number of lots sold increased.....	2,135
Number of lots leased decreased.....	165
Total number of lots disposed of increased.....	1,970
Area sold increased hectares....	6,250
Area leased decreased..... do.....	1,627
Total area disposed of increased..... do.....	4,623
Area disposed of increased..... per cent....	2.8
Value of lots sold increased.....	₱889,919.00
Value of lots leased decreased.....	69,922.00
Total value of lots disposed of increased.....	819,997.00
Annual contracted installments (without interest) increased..	43,993.00
Annual contracted rentals decreased.....	637.00
Total contracted income (without interest) increased....	43,356.00
Receipts from rents decreased.....	7,038.53
Receipts from sales increased.....	162,127.12
Receipts from interest increased.....	218,991.28
Total receipts from all sources increased.....	373,549.27
Administrative expenses decreased.....	19,138.21
Irrigation expenses increased.....	11,656.59
Total current expenses decreased.....	7,481.62

Status at close of year.

	Number.	Area.	Value.
Sold land and improvements	42,864	Hectares.	
Leased land and improvements	851	94,522	₱14,449,376.00
		1,598	198,999.00
Total	43,715	96,120	14,648,375.00
Undisposed of land and improvements, including interest.....	6,605	58,534	4,043,457.00
Annual contracted rentals.....			₱9,735.00
Annual contracted installments (without interest).....			721,966.00
Annual contracted interest (estimated).....			434,095.00
Total contracted income (interest estimated).....			1,165,796.00
Estimated delinquent installments outstanding.....			300,000.00
Estimated interest on delinquent installments.....			200,000.00
Interest accrued on undisposed land.....			295,621.00
Total receipts from all sources for the year.....			1,203,551.70
Possible receipts for the fiscal year 1914 provided all collections are made.....			1,665,000.00

Of the 42,864 friar land lots thus far sold, 4,450 lots with an area of 5,200 hectares, or 5.4 per cent of the total area sold, valued at ₱336,448, have been paid for in full. There will, therefore, be no further income from these lots and deeds have been, or soon will be, issued to the purchasers.

The number of estates on which the collections for the year exceeded the total current expenses including interest was 19 as compared with 14 for the previous year.

The surplus for the year of receipts over expenses was ₱549,964.83 as compared with ₱168,983.94 for the previous year.

The great typhoon which wrecked the city of Cebu and the plague of locusts in the island of the same name greatly interfered with the collections on the two Cebu estates. In fact, almost nothing was collected and no effort was made to enforce collections on account of the distressing conditions which prevailed.

On the other estates harvests as a rule have been abundant and purchasers have for the most part made every effort to pay their installments.

The following tables show in summary form the work accomplished during the year on each of the several estates:

Statement showing progress of friar estates during fiscal year ended June 30, 1913.

121775-6

Estate.	Areas.	Estimated occupied.	Disposed of.				Total.				
			By sale.		By lease.		Lots.		Area.		
Hectares.	Per cent.	Hectares.	Per cent.	Hectares.	Per cent.	Hectares.	Per cent.	Hectares.	Per cent.	Hectares.	Per cent.
Banilid	1,972	75.0	798	28.0	364	44.8	840	1152	72.8	3,365	
Binalat	282	94.0	465	93.7	264		466	466	98.7	264	
Binalat	3,164	99.5	3,090	99.4	3,645		3,090	3,645	99.4	3,645	
Calamba	13,015	66.6	2,386	56.5	7,384	9	1	7	56.6	7,371	
Dampol	927	99.9	372	98.9	926		372	926	99.9	926	
Guinquitto	930	100.0	684	100.0	930		684	930	100.0	930	
Imus	17,165	47.7	5,707	47.0	8,031	49	7	129	47.7	8,210	
Iba	19,507	3	4,938	59	59		59		59	69	
Iba	6,020	82.0	4,238	79.2	3,981	32	2.0	101	4,380	81.2	4,082
Iloilo	3,615	98.0	1,460	97.8	3,441		1,450		97.8	3,441	
Malinta	12	100.0	1	100.0	12		1	1	100.0	12	12
Matamoros	2,819	73.1	1,384	73.1	2,083		2,083		73.1	2,083	
Muntinlupa	7,271	60.2	2,008	59.3	4,318	31	9	71	60.2	4,389	
Naic	954	96.0	648	96.0	917		917		96.0	917	
Orion	3,813	98.5	778	83.1	3,173	6	4	16	784	83.5	
Piedad	11,134	55.6	2,944	55.6	6,196	6			2,946	55.6	
San Francisco de Malabon	22,385	100.0	2	100.0	22,436		22,436		2	100.0	22,486
San Jose	87	100.0	2	100.0	87		87		2	100.0	87
San Marcos	9,559	40.0	1,848	35.6	3,410	34	5	56	1,882	36.1	3,466
Santa Cruz de Malabon	10,157	85.0	4,235	79.0	8,036	241	3.2	333	4,496	82.2	8,369
Santa Maria de Pandi	5,416	95.6	2,240	95.6	5,183				2,240	95.6	5,183
Santa Rosa	6,992	100.0	1,117	100.0	6,992				1,117	100.0	6,992
Tala	8,168	32.0	6,389	31.0	2,634	23	6	45	6,412	31.5	2,679
Talisay-Minganilla											
Total	164,654	62.5	42,884	61.1	94,522	851	1.0	1,598	48,715	62.1	96,120
Total previous year	164,478	61.5	40,729	57.2	88,272	1,016	2.1	3,225	41,745	59.3	91,497

Note.—Increase in total areas due to purchase of Binalat and Santa Rosa detached parcels.

Statement showing progress on friar estates during fiscal year ended June 30, 1913—Continued.

Estates.	Areas.	Estimated occupied.	Current expenses.			Deficit fiscal year 1913, each estate.	Surplus fiscal year 1913, each estate.	Extraordinary non-current expenses: Surveys, preparation, plans, and descriptions.
			Annual interest on purchase price at 4 per cent.	Administration.	Irrigation maintenance and repairs.			
<i>Hectares.</i>								
Bariliad	1,872	75.0	₱8,749.98	₱1,009.61	---	₱9,759.59	₱23.53	₱7.72
Binangbag	282	94.0	1,434.91	85.21	---	1,520.12	---	64
Binian	3,564	98.5	24,052.33	2,652.12	₱1,812.68	31,675.92	588.00	588.00
Calamba	13,015	56.6	56,417.73	6,468.61	1,943.79	63,826.13	25,931.28	1,382.38
Dampoi	927	99.9	6,025.90	708.66	---	6,735.46	8,388.73	10.71
Guiguinto	930	100.0	6,222.72	721.17	---	6,943.89	9,401.08	5.52
Imus	17,166	47.7	82,880.97	9,925.62	7,438.46	100,240.06	136,150.62	75.47
Isabela	19,507	8	12,788.64	1,534.11	---	14,322.75	14,322.75	11.72
Iloilo	5,020	82.0	38,929.65	4,629.27	1,361.28	44,920.20	86,878.98	36.33
Malinta	3,515	98.0	17,616.56	2,150.93	---	19,767.18	82,449.97	16.44
Mataano	12	100.0	61.29	6.66	---	73.86	135.99	8.06
Muntinlupa	78.1	3,819	3,507.08	458.92	---	3,986.00	2,694.56	3.61
Naic	7,271	60.2	39,308.46	4,138.07	4,161.42	47,607.96	6,748.69	81.47
Orion	954	96.0	3,922.01	439.24	---	4,361.25	8,555.41	12.92
Piedad	3,813	88.5	13,213.74	1,665.17	---	14,878.91	20,587.72	12.73
San Francisco de Malabon	11,134	55.6	42,794.90	5,401.81	10,237.16	58,423.96	30,154.79	40.64
San Jose	22,485	100.0	23,902.57	2,655.18	---	26,557.76	22,468.96	20.29
San Marcos	87	100.0	4,922.99	62.47	---	5,045.46	4,722.68	40
Santa Cruz de Malabon	9,559	40.0	41,496.60	4,884.47	3,591.13	49,972.10	1,788.95	87.18
Santa Maria de Pandi	10,157	85.0	42,185.49	5,338.59	478.66	48,002.68	97,498.59	40.79
Santa Rosa	5,416	95.6	36,409.39	4,162.01	2,192.11	42,763.51	40,088.11	3,433.59
Tala	6,982	100.0	8,694.35	1,147.28	---	9,841.63	26,160.06	8.77
Talisay Minglanilla	8,158	32.0	44,311.48	5,666.84	41.10	50,019.42	42,880.12	43.00
Total	154,654	62.5	₱554,437.02	65,897.22	33,252.63	653,586.87	₱608,880.38	₱5,814.25
Total previous year	154,478	61.5	₱554,437.02	85,085.43	21,586.04	661,068.49	₱151,226.60	₱320,160.54
							• 168,938.94	147.21

Note.—Increased areas due to purchase of Biñan and Santa Rosa detached parcels.

* Net surplus.

A comparison of these tables with the corresponding ones for previous years results favorably with the following apparent exceptions:

There has been a decrease in the number of lots and area leased on four estates. This is due to the fact that holders of permanent leases have requested to have them canceled and sale certificates issued to them for the corresponding lands, and the decrease in the area leased is compensated for by a corresponding increase in the area sold.

On the Piedad and Tala estates all temporary leases expired, the occupants of the land having purchased or agreed to purchase their holdings. It, of course, follows that there has been a corresponding decrease in the annual contracted rentals and that there will be an equivalent increase in the contracted income from sales.

The annual contracted income from sales also decreases as sales are completed and the payment of installments of the purchase prices ends.

On the Biñan, Santa Rosa, Calamba, and Muntinlupa estates the receipts for the previous year included a considerable amount of delinquencies, while those for the year just ended include practically only the amounts due during that period.

Decrease in income from the Matamo, San José, and San Marcos estates is due to the lesser amounts of interest accumulating on unpaid balances which naturally decrease annually.

Subdivisional surveys and plans of detached parcels of the Santa Rosa and Biñan estates purchased during the year have led to increase in nonrecurrent expenditures for these purposes. Other nonrecurrent expenses have been practically eliminated. No expenditures have been made for the construction of irrigation ditches and the repairs made have been of a minor nature.

ADMINISTRATIVE EXPENSES ON ESTATES.

The general administrative expenses have been decreased 22.5 per cent and from ₱85,000 to ₱65,900, through further reduction in and consolidation of office forces.

The cost of irrigation maintenance and minor repairs rose from ₱21,600 to ₱33,300, due to the increased amount of repairs that have been necessary to the irrigation systems during the year.

SALE OF ESTATES.

That portion of the Banilad estate which has heretofore been held pending the decision of the military authorities as to whether

or not an Army post should be located thereon is still being withheld from sale pending a resolution of the burnt area committee of the city of Cebu as to whether it will take this land over in whole or in part. Should it not desire to do so, we anticipate that the entire area can be sold within a few months at any time.

The order of the Secretary of War restricting the sale of land on friar estates in accordance with the provisions of the Public Land Act relative to sale of public land is still in force, and has resulted in the frequent declination of sales which would otherwise have been made. I again urge the revocation of this order and reiterate the reasons therefor given in my last annual report.

There is a large area on the Talisay estate in Cebu which is practically worthless for agricultural purposes. The Director of Lands is of the opinion that it should be planted with useful trees and converted into a forest reserve. It would thus eventually become a source of revenue as there are at present no forests remaining in the vicinity of Cebu. I concur with him as to the wisdom of this procedure.

The vast areas of unoccupied land on the estates situated in Cavite and Laguna Provinces will for the most part probably remain vacant for many years unless existing restrictions on sales are removed, although if a large sum of money were spent on roadways through these estates it would assist in the sale of their lands, and any agricultural land which can be brought under irrigation and is not entirely without means of communication will also meet with a ready sale.

DELINQUENCIES.

Collections during the year have been better than ever before, but owing to the severe drought of the previous year and the suspension of payments then granted on estates which suffered especially from it, a considerable number of tenants have been unable to make the two years' payments due so that at the present time there is quite a large delinquent list. With the exception of the tenants of the Santa Cruz de Malabon and the Calamba estates, the tenants have apparently made every effort to satisfy their obligations. On the two estates in question there are delinquencies amounting to approximately ₱80,000. Three hundred and forty-six suits were filed against the delinquents on the Santa Cruz de Malabon estate in June and it is believed that the enforcement of executions against these tenants will produce the desired result.

The following table shows the present status of suits before

justice of the peace courts and the Court of First Instance for nonpayment of rents and installments of purchase price:

Estate.	Pending July 1, 1912.	Filed fiscal year 1913.	Compro-mised fiscal year 1913.	Execu-tions fiscal year 1912.	Pending June 30, 1913.
JUSTICE OF THE PEACE COURTS.					
Banilad	137	9			146
Biñan		28	15		13
Calamba		90	22	66	2
Dampol		14	10	4	
Imus	2	223	68		157
Lololboy		117	71		46
Malinta		23	13	7	3
Muntinlupa		32	19	13	
Naic		109	27		82
Piedad		3	3		
San Francisco de Malabon		158	90		68
Santa Cruz de Malabon		346	127		219
Santa Maria de Pandi	7	100	67	1	39
Santa Rosa		38	9	29	
Tala	1	80	80		1
Talisay	87		37		
Total	184	1,370	658	120	776
COURTS OF FIRST INSTANCE.					
Calamba	1				1
Orion	2			2	
Total	3			2	1

REGISTRATION OF ESTATES.

Titles to 20 out of the 23 friar estates have been adjudicated in favor of the Government of the Philippine Islands and the 3 remaining cases are now in the land court pending adjudication.

NEW PURCHASES OF FRIAR LANDS.

When the original purchase of the friar estates was made the Philippine Sugar Estates Development Company reserved certain tracts of land on the Santa Rosa and Biñan estates for its own use. There has been more or less constant agitation among the tenants concerned for the purchase by the Government of these tracts and for their sale to the tenants under the provisions of the Friar Lands Act (No. 1120). The Philippine Legislature by Act 2234 authorized the purchase of these lands together with the buildings and machinery thereon, and their sale to the tenants in accordance with the provisions of Act 1120. The purchase was made at a cost of ₱90,000. Of the 354 parcels thus secured 147 were immediately disposed of, as were a rice mill and a small camarin and dwelling house. The large hacienda house will be occupied for some years to come as an office for the friar land estates agent in Laguna Province and it is believed that the remaining parcels of land will be sold within a very short time.

FRIAR LAND LOANS.

At the close of the year there were outstanding 28 friar land loans aggregating ₱33,400. Interest on loans has accrued to the amount of ₱19,885.92, which has been added to the friar land loan fund. The following table shows the purpose for which outstanding loans were made:

Statement showing purposes for which friar land loans were made.

No.	Amount of loan.	Cultivation of sugar.	Purchase of cattle.	Purchase of sugar mills.
		<i>Hectares.</i>		
23	₱25,850	421		
1	2,400	30	2	1
1	1,950	27		1
1	1,500	32	8	1
2	1,700	32	10	
28	33,400	542	20	3

OUTLOOK FOR THE COMING YEAR.

A good crop has been harvested on most friar lands during the past year and it is believed that delinquencies will for the most part be made up in the near future and that collections for the coming year will exceed those for the year just ended.

THE SAN LAZARO ESTATE.

On the San Lazaro estate within the limits of the city of Manila the policy of filling lowlands has been steadily continued and it should be persisted in until all the low and undrained lands have been filled.

On this estate there were 2,218 occupied lots and 87 vacant lots at the end of the year. The total contracted income remains substantially unchanged. The delinquent outstanding rentals have materially increased, amounting to ₱9,747.25. This is due in part to a disastrous fire which destroyed the homes of many of the tenants and made it seem inexpedient to insist upon the collection of rentals from them until they had had time to recover from this calamity.

Action has now been had by the Legislature authorizing long-term leases on this estate under certain conditions, and it is anticipated that as a result the income from it will materially increase. This Act further provides that leases for the lands of the San Lazaro estate shall be subject to a reappraisal of the value of the lands covered thereby at the expiration of each period of ten years during the term thereof, said reappraisal to be made by the city assessor and collector of

Manila in such manner as lands of private ownership are appraised for the purpose of taxation, the annual rental for each parcel to be adjusted at the rate of 5 per cent of the reappraised value of the land. The first reappraisement has been requested and considerable progress has been made upon it. It is believed that it will result in a material increase in the total appraised rental and a corresponding increase in receipts.

PUBLIC LANDS.

There has been some increase of activity in the purchase, lease, and homesteading of public lands, as is shown by the following table:

Comparison of applications and areas for public land for the fiscal years 1912-13.

	Fiscal year—			
	1912		1913	
	Number.	Area.	Number.	Area.
Homesteads				
Sales	3,105	Ha. a. c.	4,468	Ha. a. c.
	180	36,962 98 07	289	56,172 40 37
Leases	112	8,269 98 12	119	6,403 37 01
		37,392 32 24		22,160 56 22
Total	3,397	82,625 28 43	4,876	84,736 33 60

In other words, there is an increase of $43\frac{1}{2}$ per cent in the number of applications received, although the area covered by these applications has increased only a fraction of 1 per cent. This has been due to the fact that many of the new sale and lease applications have covered small areas rather than the maximum areas allowed by law. The increase in the number of applications for public lands is believed to be due chiefly to two causes: (1) The increase in the number of public-land inspectors who are demonstrating to ignorant people throughout the provinces the methods which they should employ to obtain public lands; (2) good crops in most of the provinces so that small farmers have means with which to increase their holdings.

HOMESTEADS.

The increase in the number of homestead applications is particularly satisfactory and is believed to be very directly due to the efforts of the traveling public-land inspectors. Further-

more, homesteaders are now obtaining better protection in the courts than they previously had. The Bureau of Lands has repeatedly loaned its attorneys to homesteaders not only for the protection of their rights, but to save the public domain from registration in the land court as private property through sharp practices by attorneys and others.

There should be a still further increase in the number of public-land inspectors, not only for the purpose of instructing the common people as to their rights under the Public Land Act, but to reduce the area of public land which is annually registered under the Torrens Law by private persons who have no legal right to it.

The number of persons delinquent in the payment of installments on their homesteads continues discouragingly large and a further unfortunate feature is that nearly 20 per cent of applications on which final proofs have been presented must be canceled as the testimony shows that the law has not been complied with.

It is a regrettable fact that municipal *presidentes* and *concejales* have been more or less active in preventing homestead entrymen from cultivating their land, but in nearly all such cases which have come to the knowledge of the Bureau the matter has been settled without appeal to the courts. In 10 cases involving 34 homesteads where the land was claimed by private individuals the Government successfully opposed the attempts of the latter to establish their claim thereto, thus saving the land for the homesteaders and securing for itself the returns from 500 hectares of public land. A municipal council in Occidental Negros filed a protest against three homesteaders because they were unknown in the municipality, stating that the municipality desired to retain all the public land within its limits for its residents and that nonresidents had no right to file applications therefor!

An important decision has been rendered by the Court of Land Registration to the effect that the makers of *cañgins*, the destructive forest clearings which cause such damage, gain no title to the land covered by their operations.

The following tables give the details of homesteads, sales, and leases:

Detailed statement covering homestead applications received under the provisions of Chapter I, Act 926, during the period from July 1, 1912, to and including June 30, 1918, showing the status of same June 30, 1918.

Province.	Applications received.		Pending correction.		Pending report from Forestry Bureau.		Pending receipt of fees.		Rejected, canceled, withdrawn.		Entries.	
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
Agrusay	7	Ha. a. c.	111	Ha. a. c.	16	Ha. a. c.	95	Ha. a. c.	17	Ha. a. c.	166	Ha. a. c.
Albay	19	254	43	68	9	141	00	00	6	95	77	15
Ambo Camarines	92	1,309	62	18	24	357	40	27	8	523	26	01
Antique	29	520	77	90	7	100	30	00	39	326	47	90
Batangas	186	2,205	13	86	13	146	69	58	134	1,696	61	39
Batanes	67	793	14	34	4	43	13	04	60	704	36	08
Bohol	1	6	69	24		1	6	69	24		2	29
Bulacan	34	472	54	60	11	141	03	60	11	148	25	00
Cagayan	140	2,108	14	66	17	269	90	00	113	1,690	48	85
Capiz	21	324	36	00	5	80	00	00	14	212	36	00
Cebu	14	39	99	00	1	16	00	00	3	23	00	00
Ilocos Norte	167	2,240	10	45	34	450	75	73	78	1,038	69	76
Ilocos Sur	71	962	29	00	22	305	18	62	33	439	62	56
Iloilo	6	82	00	00	2	20	00	00	3	46	00	00
Isabela	123	1,637	21	22	7	111	25	60	39	441	72	06
Laguna	34	387	86	49	4	54	00	00	28	301	86	49
LeYTE	17	241	79	03	4	52	56	00	12	175	00	00
Mindoro	179	2,509	88	44	26	418	24	00	116	1,832	64	44
Moro	317	2,336	96	43	45	499	13	18	194	1,368	22	84
Mountain	103	1,514	77	63	34	473	85	77	24	316	02	50
Negros Occidental	8	103	67	67	20	286	98	39	38	560	45	83
Negros Oriental	797	9,178	39	68	122	1,689	88	07	44	6,032	59	88
Nueva Ecija	73	322	67	04	19	95	50	49	54	227	16	55
Nueva Vizcaya	122	1,887	22	37	60	392	36	00	52	797	42	50
Palawan	20	2,276	81	65	2	29	00	00	11	138	51	65
Pangasinan	312	3,651	33	27	44	469	44	03	166	1,873	37	73
Rizal	138	1,737	00	73	4	50	04	68	66	633	98	34
Samar	4	60	56	00	2	32	00	00		1	14	66
Sorogon	151	2,062	20	12	28	388	32	85	85	1,112	66	27
Surigao	1	10	00	00					1	10	00	00
Tarlac	274	4,078	19	79	28	419	82	79	103	1,514	62	51
Tayabas	884	10,076	39	27	121	1,648	38	90	650	6,165	27	65
Union	80	847	67	13	13	179	71	32	42	438	77	65
Zambales	64	869	95	96	8	82	11	00	56	780	84	96
Totals	4,468	56,172	40	37	748	8,176	18	45	2,665	32,296	21	22
									497	6,540	46	98
									243	3,448	48	23
									312	3,908	72	13
										2	19	00

Detailed statement covering homestead applications received under the provisions of Chapter I of the Public Land Act (No. 926) during the period from July 26, 1904, to and including June 30, 1913, showing the status of same June 30, 1913.

Province.	Applications received.			Pending correction.			Rejected, canceled, withdrawn.			Pending report from Forestry Bureau.			Pending receipt of fee.			
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.		
Agusan	19	H. ^a	1	H. ^a	1	H. ^a	1	H. ^a	1	H. ^a	7	H. ^a	65	H. ^a	c.	
Albay	232	2,112	23	68	14	127	46	60	49	446	12	95	11	100	94	
Ambos Camarines	872	12,140	73	26	556	45	60	51	530	88	64	51	709	48	14	
Antique	200	2,541	38	89	13	158	33	68	54	657	59	68	33	401	92	14
Batangas	484	6,556	59	19	18	243	34	66	88	1,192	10	96	142	83	14	14
Batanes	67	703	14	4	43	13	04	2	29	95	22	60	2,923	83	14	40
Batangas	3	21	51	55									2,704	96	08	1
Bohol	4	37	29	24									21	92	09	1
Bulacan	68	792	26	10	16	218	55	20	7	10	00	08	2	22	69	24
Cagayan	517	7,373	04	79	22	313	74	80	38	541	91	80	14	190	63	30
Capiz	269	3,880	21	95	10	144	24	70	123	1,774	13	81	16	230	79	73
Cebu	59	592	36	94	5	50	20	10	40	401	50	80	5	50	20	10
Ilocos Norte	488	5,672	24	95	41	530	96	64	52	673	42	68	90	2,165	53	60
Ilocos Sur	433	5,919	20	61	24	328	98	48	141	1,927	42	82	35	478	45	70
Iloilo	113	1,565	57	61	3	67	61	32	176	2,086	67	36	66	51	35	31
Isabela	782	2,858	49	38	12	142	76	27	32	1,061	38	39	75	652	65	30
Laguna	154	1,879	73	75	6	73	23	66	77	1,061	38	14	14	184	58	44
Leyte	205	2,702	84	84	6	79	10	76	59	1,984	32	80	150	3,133	45	00
Mindoro	992	14,109	13	44	36	512	02	80	136	7	69	60	10	52	49	1
Misamis	92	321	67	75									10	10	10	10
Moro	707	8,860	55	13	80	1,002	64	00	69	384	77	70	195	3,433	93	50
Mountain	114	1,461	47	50	32	448	69	14	179	47	86	27	346	19	73	12
Negros Occidental	1,149	16,590	21	10	32	489	89	12	508	7,579	02	28	61	983	86	61
Negros Oriental	53	243	41	28	7	32	14	89	23	1,387	87	53	21	706	9,969	29
Nueva Ecija	4,110	56,079	28	54	165	2,061	94	50	822	1,387	94	34	111	558	96	27
Nueva Vizcaya	175	881	06	43	34	2,120	95	68	2	244	99	63	13	1,174	00	89
Palawan	226	2,406	41	17	61	649	51	58	23	1,174	00	69	173	2,994	22	35
Pampanga	665	8,710	04	76	2	26	77	65	13	6,327	60	99	66	68	4,416	75
Pangasinan	963	10,981	62	19	68	779	92	60	249	6,327	60	99	173	2,994	22	35
Rizal	394	6,489	23	19	8	110	44	16	60	828	31	20	66	887	33	80
Samar	7	78	79	50	2	22	61	28	3	33	76	82		1	1,417	64
Sorogon	1,077	14,268	86	18	38	457	17	74	236	2,026	48	68	120	2,559	73	60
Surigao	443	5,577	96	00									2	26	87	76
Tarlac	947	12,233	01	89	27	458	90	83	202	2,620	04	10	149	1,982	60	45
Tayabas	32,271	68	167	1	1,744	11	80	664	7,116	87	60	683	7,687	44	70	
Union	2,012	52	46	36	10	123	35	40	62	641	34	08	68	777	13	02
Zambales	228	2,386	46	63	10	35	38	40	62	641	34	08	1	1,416	12	33
Total	19,313	245,369	73	39	1,018	12,475	58	47	4,470	49,967	14	64	3,338	50,785	91	23
													1,636	21,285	65	98

Detailed statement covering homestead applications received under the provisions of Chapter I of the Public Land Act (No. 926) during the period from July 26, 1904, to and including June 30, 1913, etc.—Continued.

Province.	Entries.			Contested.			Canceled.			Patents issued.			Surveyed.			
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	
Agusan	10	Ha. a. c.	Ha. a. c.	Ha. a. c.	1	Ha. a. c.	Ha. a. c.	Ha. a. c.	Ha. a. c.	Ha. a. c.						
Albay	136	1,229 75	159 50	159 50	12	166 58	68	20	278 22	80	9 46	9 46	3	42 58	30	
Ambo Camarines	319	4,437 73	66	1,132 70	28	5	2	24	35	92	2	13 12	49	20 68	04	
Antique	189	2,559 32	63	16 00	00	67	73	35	110	18	6	6	6	68 35	10	
Bataan	1	16	00													
Batanes																
Batangas																
Bohol	1	4	60 00													
Bulacan	6	81 95	70													
Cagayan	302	3,454 62	20													
Capiz	103	1,657 86	76													
Cebu	3	30 12	06													
Ilocos Norte	174	2,253 36	96													
Ilocos Sur	196	2,665 68	90													
Illoilo	46	638 72	10													
Iloilo	490	5,690 59	90													
Laguna	21	256 32	81	1	12 20	61	2	24 41	22							
Leiye	113	1,439 56	98													
Mindoro	589	3,377 34	70													
Misamis	14	140 73	36													
Moro	241	3,020 45	30													
Mountain	25	320 49	75													
Negros Occidental	445	6,257 54	95													
Negros Oriental	20	91 58	40													
Nueva Ecija	1,695	22,691 90	60	3	39 58	70	120	1,595 88	00	38	32 81	18	92	1,224 50	80	
Nueva Vizcaya	36	181 29	52													
Palawan	29	308 78	62													
Pampanga	32	428 32	96	1	13 38	53	2	26 77	06					24	255 54	72
Pangasinan	385	4,415 75	75	2	22 98	90	12	137 63	40							
Rizal	181	2,498 74	12	1	13 80	52	14	138 27	28							
Samar	1	11 25	64													
Sorsogon	529	6,018 08	62	22	291 46	16	27	357 69	06							
Surigao	27	332 84	76													
Tarlac	377	4,889 87	85	1	12 97	05	23	298 32	15	5	52 39	65	6	64 75	25	
Tayabas	1,220	13,582 98	00	1	11 10	90	23	255 50	70					11 122 19	50	
Union	101	1,065 84	29											10 105 29		
Zambales	82	1,011 50	28											123 35 40		
Total	8,226	103,273 94	46	51	676 79	29	341	4,347 06	38	58	213 22	83	180	2,344 42	16	

Detailed statement covering sales applications received under the provisions of Chapter II of the Public Land Act (No. 926) during the period from July 1, 1912, to and including June 30, 1913, showing the status of same June 30, 1913.

Detailed statement covering sales applications received under the provisions of Chapter II of the Public Land Act (No. 926) during the period from July 26, 1904, the date of taking effect of the Public Land Act, to and including June 30, 1918.

Province.	Applications received.			Rejected, canceled, withdrawn.			Pending action.			Pending report from Forestry Bureau.			Sales accomplished.			Patents issued.		
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Value.	Principal.	Interest.	Amount received.	Number.	Area.	H. a. c.	
Agusan	3	98,711.00		H. a. c.	1	12,960.00		H. a. c.	2	25,600								H. a. c.
Albay	1	16,970.06							1	15,050								
Ambos Camarines	6	75,673.88	1	16,000.00	1	16,000.00	2	38,779	2	6,777.64	\$11,60	\$76,00						
Antique	17	70,612.24	4	4,486.83	1	4,500.00	2	7,180.00	10	54,496.1	2,176.98	633,91	\$22,16					
Bataan	34	390,576.67	11	120,555.00	4	39,078.80	6	50,970.00	13	179,973.87	1,880.04	1,793,64	131,45	4	58,11	97		
Bohol	1	10,000.00		10,000.00														
Bulacan	11	110,905.60	8	78,868.82														
Cagayan	36	2,438,994.85	7	744,209.90	17	385,000.00	7	90,785.88	6	1,079,00	12,844.00	3,880,00						
Capiz	6	68,214.46	6	68,214.46														36,33
Cebu	16	66,334.44	14	62,294.44														3,26
Ilocos Norte	63	620,578.81	37	426,688.00														112,57
Ilocos Sur	53	594,583.85	35	361,244.48	5	50,507.22	3	24,559.96	15	158,276.69	2,397.48							84,70
Ililo	5	77,513.88	5	77,513.88														
Isabela	12	270,726.62	6	61,769.82	1	15,368.80	2	10,000.00	3	183,100.00	1,936.00	1,946,00	482,00					
Iligan	2	31,312.24																
Leyte	10	100,200.00	7	82,700.00	2	7,500.00	1	10,000.00										
Manila	1	1,040.06		1,040.06														
Mindoro	16	3,656,431.19	9	320,000.00														
Misamis	1	1,000.00	27	1,000.00														
Mountain	52	7,947,859.11	25	4,594,583.82	6	869,000.00	17	547,622.29	5	1,936,335.50	19,237.38	7,998,04	5,99					
Negros Occidental	17	368,673.88	7	38,983.82														
Negros Oriental	2	66,000.00	6	132,283.76														
Nueva Ecija	142	1,849,123.86	42	322,483.86	14	181,493.86	1	55,931.81	20	1,024,000.00	8	3,321,63	3,958,34					31,99
Palawan	12	2,129,882.22	2	32,000.00	1	2,184.40	1	16,000.00	31	413,655.50	2,071,86	3,209,36						
Pampanga	4	32,409.00	2	16,125.00	1	28,400.00	1	16,000.00	11	171,140.00	2	22,250.00	451,35	174,20	5,52			
Panay	72	808,535.13	48	532,643.85	11	82,501.16	4	103,220.00	11	144,018.00	2,511.01							
Rizal	50	505,412.30	34	256,174.91	1	16,000.00	1	14,000.00	1	16,000.00	1	201,50					136,91	
Samar	3	46,000.00	1	16,000.00														
Sorsogon	26	164,734.44	20	10,607.60	78	1												619,08
Surigao	3	19,639.49	3	19,539.49														
Tarlac	41	1,639,877.95	7	218,969.95	12	146,608.00	16	207,106.00	6	1,067,194.40	14,672.27	4,065,77	43,93					
Tayabas	149	2,710,741.18	38	606,747.64	31	207,764.83	60	497,264.83	20	1,398,963.22	10,734,44	7,998,67	510,59	1	13,64	12		
Union	5	34,800.00	4	33,300.00	1	20,319.40	5	50,060.00	1	3,320.00	49,80	12,47						
Zambales	14	125,624.0	5	51,965.50	3	20,319.40	5	50,060.00	1	3,320.00	49,80	12,47						
Total	822	26,971,0815	397	9,390,9896	113	2,007,3370	212	4,169,8453	170	11,412,9596	127,446,30	50,848,15	1,844,20	7	108,7606			

Detailed statement covering lease applications received under the provisions of Chapter III of the Public Land Act (No. 926) during the period from July 1, 1912, to and including June 30, 1913, showing the status of same June 30, 1913.

Province.	Applications received.		Pending action.		Rejected, canceled, or withdrawn.		Pending report from Forestry Bureau.	
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
		<i>Ha. a. c.</i>		<i>Ha. a. c.</i>		<i>Ha. a. c.</i>		<i>Ha. a. c.</i>
Bataan	1	160 00 00					1	160 00 00
Batanes	1	18 28 40					1	18 28 40
Bulacan	1	232 16 74					1	232 16 74
Isabela	1	25 00 00					1	25 00 00
Mindoro	3	2,997 00 00			1	1,000 00 00	2	1,997 00 00
Misamis	1	78 34 80					1	78 34 80
Moro	11	2,850 95 52	3	420 28 98			8	2,430 66 59
Nueva Ecija	40	9,963 00 00	11	4,636 00 00	2	240 00 00	27	5,027 00 00
Negros Oriental	1	4 96 50					1	4 96 50
Palawan	1	1,024 00 00			1	1,024 00 00		
Pampanga	1	56 00 00					1	56 00 00
Pangasinan	1	112 00 00					1	112 00 00
Rizal	5	32 00 00			3	60 00 00	2	22 00 00
Sorsogon	1	318 80 00					1	318 80 00
Tarlac	47	8,147 09 26	29	2,098 66 10	5	136 00 00	13	912 43 16
Tayabas	1	1,024 00 00	1	1,024 00 00				
Union	2	31 95 00	2	31 95 00				
Total	119	22,160 56 22	46	8,270 90 03	12	2,460 00 00	52	11,389 66 19

Detailed statement covering lease applications received under the provisions of Chapter III of the Public Land Act (No. 926) during the period from July 26, 1904, to and including June 30, 1918.

Province.	Applications received.		Pending action.		Rejected, canceled, or withdrawn.		Pending report from Forestry Bureau.		Surveyed.		Leases executed.		Annual rental.			
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.				
Agrusao	6	Ha. a. c. 6,144 00		Ha. a. c. 2,000 00		Ha. a. c. 6,144 00		Ha. a. c. 1,000 00		Ha. a. c. 13 28		Ha. a. c. 1 13 28	₱266.16			
Ambos Camarines	4	8,000 10	00	2	191 00	5	726 99	62	1	23 40	1	584 12	31	₱24 86	92	
Batayan	12	405 83	68	2					1	23 40	1	232 16	74			
Bataanes	1	13 28	40						1							
Bulacan	1	232 16	74						1							
Cebu	4	23 19	25	1	6 20 05	3	17 99 20									
Ilocos Norte	1	16 00	00			1	16 00	00	1	25 00	00					
Isabela	2	1,049 00	00	1	1,024 00	00			1	25 00	00					
Laguna	1	30 00	00			1	30 00	00								
LeYTE	11	20 53		1	908 00	00			3	1,181 00	00	6	4,445 00	00		
Mindoro	11	6,861 66	92	2	1,102 34	80			2	322 00	00	14	3,075 51	59		
Misamis	4	1,134 84	80	2	11,471 56	95	93	16,037 15	26	14	9,187 14	72	10	4,944 62	81	
Moro	173	44,716 00	73	41	11,471 56	95	2	40 00	00							
Mountain	2	40 00	00			3	920 00	00								
Negros Oriental	3	920 00	00						1	4 96	50					
Nueva Ecija	2	11 05	19	1	6 08	69			26	10,601 75	00	28	5,118 00	00	₱56.87	
Palawan	100	31,662 05	89	41	14,059 33	01	13	5,747 00	00	2	1,120 00	00	3	770 30	33	₱1,882 97
Pampanga	6	9,118 84	60			4	3,072 00	00	1	56 00	00	1	1 88	84	₱41.92	
Pangasinan	4	3,128 00	00	1	7 46 00	2	10,601 75	00	1	112 00	00	1	1	3 47	64	
Rizal	12	216 44	46	1	10 00	00	7	324 81	17	2	22 00	00	1	6 51	62	₱8.27
Sorogon	3	451 82	79	2			1	87 87	00	1	318 80	00				
Surigao	1	323 14	64	1	02 42	42										
Tarlac	79	6,937 02	91	46	4,681 91	20	19	1,142 68	55	14	1,112 48	18				
Tayabas	4	2,450 00	00	1	1,024 00	00	2	1,364 00	00	1	62 00	00				
Union	3	61 96	00	3	61 95	00	1	500 00	00							
Zambales	1	500 00	00													
Total	459	21,446 18	35	148	36,643 08	06	196	48,998 84	26	74	15,730 44	79	20	10,869 24	28	₱21,744 30
														87	3,722.49	

FREE PATENTS.

Substantial progress has been made in the investigation of free-patent applications and all of those covering lands in the provinces of Batanes, Nueva Vizcaya, and Leyte have been examined. Quite a large group of investigations have been made in the Provinces of Isabela, Nueva Vizcaya, Negros Occidental, Palawan, and Tayabas. Surveys have been completed in the former group of provinces and are in progress in the latter. It has been found necessary to reject about 11 per cent of the applications in Nueva Vizcaya because the applicants have not occupied and cultivated the land for the period required by law. For the same reason 3 per cent were rejected in Batanes, 65 per cent in Ambos Camarines, 55 per cent in Nueva Ecija, 50 per cent in Leyte, and 35 per cent in Isabela. In many instances it was found that the applicants had sold their lands since filing their applications. In several instances applicants withdrew their applications because they preferred to attempt to secure titles through the land court as the free-patent chapter prohibited the sale of the land for seven years after the patents were issued. For a similar reason some other applicants have refused to have their lands surveyed.

Three hundred and forty-one free patents were issued during the year. The investigation and survey of such patents will continue as fast as the funds and employees at the disposal of the Bureau will permit, and it is believed that a large number of patents will be issued during the coming year.

NEW LEGISLATION.

At the last session of the Legislature there was passed an amendment to the Public Land Act renewing the opportunity to file free patents and extending this opportunity to the year 1923. As this Act must go to the President and to Congress, its provisions can hardly become operative before the calendar year 1914. It is most important that it should meet with approval. A very large number of persons entitled to free patents remained ignorant of their privileges throughout the entire period during which they might have claimed them, in spite of every effort on the part of the Bureau of Lands to acquaint them with their rights, and were the opportunity to obtain free patents again extended a very large number of such individuals would undoubtedly avail themselves of it. The arguments which held good for the granting of the privilege in the first instance still hold good.

IMPORTANT COURT DECISION.

During the year two applicants for free patents were enjoined by the Court of First Instance from entering upon a tract of land claimed by another individual who possessed no title. Upon investigation by the Bureau of Lands it was found that the free-patent applicants had cultivated the land and had claimed it in their own right for many years. The tracts which they desired were accordingly surveyed and patents issued. Upon presentation of their certificates of title they immediately entered upon the land. They were arrested and cited to appear before the court for contempt, but at the hearing of the contempt proceedings they presented their certificates of title and were immediately discharged, the court holding that they had a right to enter upon the land to which they had a Torrens Title.

The following table shows the status of all free-patent applications at the close of the year:

Detailed statement covering free-patent applications received under the provisions of Chapter IV of the Public Land Act (No. 926) during the period from July 26, 1904, to and including June 30, 1913, showing the status of same June 30, 1913.

Province.	Applications received.			Rejected, canceled, withdrawn.			Pending investigation and survey.			Patents not issued.			Patents issued.			Contested.				
	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.	Num- ber.	Area.		
Agusan	1	Ha. a. c.	1	Ha. a. c.	12	60 00	23	133	49 03	21	129	80 06	6	14	23	69	69	69	69	
Albay	49	230 78	92	141	1,243	17 92	19	276	68 83	61	613	69 11	1	13	30	78	78	78	78	
Antibes Camarines	221	1,360 63	72	1,011	27 81	201 06	96	27	12	4	5	49 54	27	115	26	91	91	91	91	
Antique	83	1,168 64	02	25	1,29 48	88	3	890	1,864 38 26	388	1,566	15 57	38	142	59	16	16	16	16	
Batangas	56	226 43	28	6	60 03	6	3	688	81 26	712	446	79 25	12	90	31	69	69	69	69	
Batangas	56	6 07	29	2	688	26 48	25	287	83 89	6	52	63 63	1	1	29	02	02	02	02	
Benguet	1,436	4,286 15	80	119	63 04	73	19	63	25 48	265	61	29	10	71	10	63	63	63	63	
Cagayan	731	500 04	73	30	1,1 29	02	14	24	89 50	124	365	71 05	25	58	10	61	61	61	61	
Capiz	1	614 65	46	80	301	10 09	17	45	80 39	31	48	268 68	37	6	6	50	55	55	55	
Cavite	24	157 28	38	14	301	69 49	12	301	49 52	35	14	58 60	38	4	4	19	89	89	89	
Cebu	19	351 06	49	12	301	49 52	7	301	49 52	35	283	2,071 63	38	4	4	19	89	89	89	
Ilocos Norte	60	186 45	95	32	113	45 73	14	73	14	58 60	283	1,583 41	26	15	201	40	40	40	40	
Ilocos Sur	60	2,772 63	65	113	700	89 57	57	700	89 57	58	52	60 00	16	16	16	16	16	16	16	
Iloilo	824	2,268 60	74	301	736	69 49	49	736	69 49	50	52	60 00	16	16	16	16	16	16	16	
Isabela	60	109 20	63	8	48	26 97	26	26	28 97	124	365	71 05	25	58	10	61	61	61	61	
Laguna	157	456 10	63	59	59	53 87	48	53	53 87	48	283	68 37	38	6	6	50	55	55	55	
Leyte	113	753 08	01	59	448	53 77	48	448	53 77	48	283	68 37	38	38	38	323	74	74	74	
Mindoro	77	697 96	92	24	1,077	53 77	24	1,077	53 77	24	90	88 16	15	15	15	37	65	65	65	
Misamis	30	96 86	82	21	97	51 54	6	97	51 54	6	10	22	23	1	70	20	20	20	20	
Moro	302	4,463 01	34	364	2,266	96 13	148	2,266	96 13	148	2,200	65 21	21	4	4	38	81	79	79	
Negros Occidental	1,489	2,230 92	84	105	1,62	27 82	1,384	1,62	27 82	1,384	2,128	66 02	28	1	1	15	37	65	65	
Negros Oriental	1,287	1,084 25	10	130	483	15 82	107	483	15 82	107	561	10 00	28	3,322	322	322	322	322	322	
Nueva Ecija	2,629	3,908 02	43	277	1,498	94 74	74	1,498	94 74	74	1,346	4,131 59	58	5	5	54	60	62	62	
Nueva Vizcaya	2,100	5,690 01	34	150	1,498	94 74	74	1,498	94 74	74	1,263	4,131 59	58	2	2	17	56	56	56	
Palawan	423	1,461 20	75	62	247	51 04	04	247	51 04	04	1,261	69 71	71	1	1	10	74	74	74	
Pangasinan	326	1,017 06	18	183	528	78 00	00	183	528	78 00	142	477	53 44	44	1	67	00	00	00	00
Rizal	3	18 37	00	1	1	70 00	00	1	1	16	00	00	00	1	16	00	00	00	00	
Samar	1,582	7,759 12	28	288	1,645	66 47	47	882	4,557	88 87	16	16	165 50	00	1	366	1,666	65	64	
Sorsogon	82	2,224 50	00	7	79	00 00	00	79	00 00	00	25	165 50	00	1	1	16	00	00	00	
Surigao	243	1,928 19	38	113	1,188	45 19	19	1,188	45 19	19	144	84 67	67	1	1	16	00	00	00	
Tarlac	1,880	4,886 77	14	455	1,258	77 77	77	1,258	77 77	77	3,049	4,66 08	08	6	6	6	15	53	52	
Tayabas	113	463 68	49	21	88	36 67	67	88	36 67	67	367	39 92	92	3	3	8	66	73	73	
Union	34	182 18	14	11	88	61 10	2	88	61 10	2	10	81	3	3	3	18	18	18	18	
Zambales																				
Total	15,885	52,050	56	3,292	16,283	24	75	8,371	26,174	13	41	3,488	5,664	17	66	722	3,967	72	84	
																	17	61	27	

TOWN SITES.

No new town-site reservations were made during the year. The Zamboanga town site has been withdrawn by resolution of the Philippine Commission for the reason that the land within it was fully covered by the cadastral proceedings under the provisions of Act 2075.

The total value of all lots sold during the year in the Baguio town site is ₱5,991.37.

The following table shows the town sites under the Public Land Act and their respective areas so far as they have been determined by the Bureau of Lands:

Name of town site.	Total area.	Name of town site.	Total area.
Baguio.....	Sq. meters. 65,949,800	Jolo.....	Sq. meters. 779,726
Bontoc.....	3,766,487	Libungan.....	370,601
Bosoboso.....	379,992	Malaybalay.....	5,760,000
Butuan.....	493,158	Mailag.....	5,760,000
Cababén.....	1,615,378	Malabang.....	1,550,703
Cervantes.....	3,433,244	Olongapo.....	8,002,635
Cotabato.....	408,740	Parang.....	648,387
Dansalan.....	645,908	Pinamalayan.....	462,800
Dapitan.....	2,149,132	Sibul Springs.....	260,000
Davao.....	2,432,815	Sumilao.....	4,160,000
Dipulog.....	2,861,363	Tangculan.....	5,760,000
Impasugong.....	5,760,000	Tarlac.....	573,694

UNPERFECTED TITLES.

There have been 496 notices received from the Court of Land Registration of cases in which the applicant requested the benefits of Chapter VI of the Public Land Act, an increase of 40 over the previous year, while the increase in area of land covered has been 16,711 hectares.

The following table shows the action taken by the Director of Lands and the reasons therefor, also the division of the applications between private persons, municipalities, and provinces:

No opposition	320
No action	3
Opposition	173

496

Reasons for opposition:

Land included in civil reservation.....	23
Difference in area between title presented and survey.....	20
Government property	9
No titles presented with cases.....	93
Land appeared to be public land.....	16
Land appeared to be plazas.....	12

173

Titles applied for by:

Private parties	413
Municipalities	77
Provinces	6

496

COMPULSORY REGISTRATION.

Six additional cases were filed in the Court of Land Registration covering lands in the municipality of Asingan, Province of Pangasinan. These cases included all the balance of the lands in that municipality not already covered by the two cases previously reported, and aggregated 5,704 hectares divided into 5,562 parcels. Because of the lack of judges in the Court of Land Registration no hearing has been had on any of them, but hearings have been had in the following cases:

Binalonan, Pangasinan: One case; 1,151 hectares; 1,278 parcels; case heard; no decision rendered.

Municipality of Cavite, Cavite: 21 hectares; 274 parcels; hearing held July 2.

Pilar, Bataan: 212 hectares; 175 parcels; parcels adjudicated to private owners.

There were filed three additional cases covering small areas the titles to which were in doubt; two have been decided in favor of the occupants but no decision has been reached in the third.

RESERVATIONS OTHER THAN TOWN SITES.

The following table shows the number and purpose for which reservations other than town sites have been made during the year. It is followed by a table showing all reservations of every kind which have been made since the Public Land Act has been in effect.

Reservations other than town sites made under the provisions of the Public Land Laws during the fiscal year 1913.

Province and purpose.	Insular.			Municipal.		
	Number.	Area.	Ha. a. c.	Number.	Area.	Ha. a. c.
Cagayan, Constabulary	1	1	02 03			
Ambos Camarines, non-Christian settlement	1	1,553	10 50			
Cebu, agricultural experiment station	1	6	86 02			
Ilocos Norte, school				1	64	81
Isabela, Constabulary	1		10 00			
Laguna, watershed	1	239	39 27			
Mountain, school				1	26	08
Palawan:						
Leper colony (14 islands)	1					
Penal colony	1	41,005	99 53			
Pampanga, civil public				1	119	21 00
Total	8	43,350	95 00	3	120	11 89

Reservations other than town sites made under the provisions of the Public Land Laws during the year ended June 30, 1913.

Purpose of reservation.	Insular.			Municipal.	
	Number.	Area.	Number.	Area.	
Agricultural experimental station	1	Ha. a. c. 6 36 02			
Civil public	2	11 02 08		1	119 21 00
Constabulary	1	535 07 65			
Forest	1				
Leper colony (14 islands)	1	1,553 10 50			
Non-Christian settlement	1	41,006 99 53			
Penal colony	2	90 89			
School	1	239 39 27			
Watershed	8	43,350 95 00		3	120 11 89
Total					

Reservations other than town sites made under the provisions of the Public Land Act to and including June 30, 1913.

Purpose.	United States Government.		Insular.		Provincial.		Municipal.	
	Number.	Area.	Number.	Area.	Number.	Area.	Number.	Area.
Agricultural experimental station		Ha. a. c. 2,210 00 02	7	Ha. a. c. (a)				
Do			1					
Cemetery							1	111 58 72
Civil public			1	27 88 25	11	309 99 33	11	127 68 18
Do						(a)		
Coal	2	6,479 00 00						
Constabulary			14	58 82 91				
Customs			2	10 18 28				
Forest			2	1,015 07 65				
Highway			1	28 00 00	2	2 98 10		
Do				(a)				
Leper colony			1	39,672 00 00				
Do			1	(a)				
Lighthouse	3	10 00 00	38	237 75 05				
Do			28	(a)				
Market							1	20 00
Military	80	28,611 35 41						
Do	7	(a)						
Mineral springs			2	4 38 91				
Monument			2	1 09 00				
Naval	2	1,681 00 00						
Do	4	(a)						
Non-Christian settlement			3	32,873 74 83				
Parks			2	1 98 80				
Penal colony			2	49,811 99 53				
Quarantine and Marine Hospital Corps			1	10 00 00				
Quarry			1	37 00 00				
School					32	781 66 50	26	29 34 71
Water power			1	5,900 00 00				
Do			1	(a)				
Wireless telegraph	4	8,805 00 00						
Water supply	1	239 39 27					4	27,131 43 02
Total	41	36,882 00 00	81	132,122 18 00	46	1,204 79 34	48	27,401 68 19
	11	(a)	82	(a)	1	(a)		

^a Not given.

FORESHORE AND LANDS UNDER WATER.

There have been 8 applications to lease foreshore lands or lands under water, of which 2 have been rejected on recommendation of the Secretary of Commerce and Police, 2 are pending advertisement, 3 are pending with the Secretary of

Commerce and Police in accordance with the provisions of section 5, and the lease has been executed for 1 at an annual rental of ₱400. A temporary lease has also been executed for a small wharf on the Pasig River at an annual rental of ₱96. Nine foreshore leases have been executed since the provisions of Act 1654 became effective at a total annual rental of ₱1,683.50.

MANILA RECLAMATION AREA NO. 1.

Details of the leases executed on this area will be found in the report of the Director of Lands and need not be given here.

LANDS FORFEITED TO THE GOVERNMENT FOR NONPAYMENT OF TAXES.

The number of certificates of forfeiture of land for nonpayment of taxes covered only about half as many parcels as during the previous year, showing that a larger percentage of land-holders are paying their taxes. Three thousand two hundred and ninety-four parcels of such land were repurchased by the original owners, as against 1,869 for the previous year. The Province of Samar still leads the delinquent tax list; Leyte, Sorsogon, and Surigao are bad. There have been no forfeitures in Batangas, Camarines, and Nueva Ecija and investigation has shown that the reason, so far as concerns Nueva Ecija, is that each municipality brings suit under the provisions of section 83 of the Municipal Code against tax delinquents. Upon the rendering of judgment, execution issues, and the land is sold and the proceeds are applied to the payment of the taxes and penalties. This section of the Code was not expressly repealed by Act 1791 and the question as to whether it was repealed by indirection remains to be determined. As a rule, the land thus forfeited to the Government is public domain which has been occupied by private individuals who claim private ownership, declare the same for taxes, and fail to pay them. They would have little prospect of obtaining title and hence if provinces and municipalities dispose of such lands through a tax sale they are in reality selling public lands contrary to the provisions of the Public Land Act. This clouds the title to much land which should be taken up by homestead, purchase, or lease, as an application for the registration of title to it would necessarily be contested by the Government and the cost of the litigation would probably exceed the value of the land if taken up under the provisions of the Public Land Act, so that the whole condition is unfortunate.

The following tables show the facts as to the registration of mining claims:

Detailed statement of mineral claims filed under the provisions of the acts of Congress of July 1, 1902, and February 6, 1905, and Acts Nos. 624, 777, and 855, of the Philippine Commission, during the period from July 1, 1912, to and including June 30, 1913.

Province.	Lode.	Placer.										Total lode and placer, and	
		Gold.	Guano.	Rock.	Not stated.	Total.	Iron.	Stone.	Lime.	Gravel.	Kaolin.	Petroleum.	
Agusan													86
Albay	1												2
Ambo Camarines	19			1		86							1
Antique				19	21	128							21
Benguet	8			14	2	14							123
Bulacan							11		1				32
Cebu					5				1				1
Leyte												2	2
Mindoro												4	4
Moro												16	16
Nueva Ecija												50	50
Rizal												7	36
Sorsogon	102				10	11							102
Surigao	7				7	37							37
Tayabas													192
Total	227	1	11	128	367	225	11	11	2	1	1	1	465

Detailed statement of mineral and mining claims filed under the provisions of acts of Congress of July 1, 1902, and February 6, 1905, and Acts Nos. 624, 777, and 855, of the Philippine Commission, during the period to June 30, 1918.

SURVEYING AND DRAFTING.

All vacant places in the surveying and drafting division have been filled. The work accomplished is greatly in excess of that during any previous year, but the demand has been so great that it is nevertheless about three months in arrears.

It was hoped that the application of the Cadastral Act would somewhat relieve the pressure for individual surveys, but lack of funds prevented rapid progress on cadastral survey work.

There were made 3,810 surveys, covering 8,924 parcels of land with a total of 203,907 hectares, at a cost of ₱367,840.27. There are also a large number of incomplete surveys upon which more or less work has been done.

THE CADASTRAL ACT.

The Cadastral Act (No. 2259), authorizing the surveying of all lands within a given district at one time, bringing the adjudication of the titles to the land surveyed before the land court, and extending over a period of five years the payments of cost by the landowners, was passed by the Philippine Legislature on February 11, 1913, after three years of determined effort to secure its passage, which means much to the small landowners of the Islands, as it enables them cheaply to secure title to their land. It is anticipated that before the close of the next fiscal year approximately 100,000 parcels will have been surveyed under the provisions of this Act and will be ready for the Court of Land Registration, but the number of judges available to hear them is so small that it will be two or three years before the court can even dispose of the cases already under way.

It is believed that the Cadastral Act will reduce the cost of registration of title by at least one-half; will segregate private property from the public domain; will give insular, provincial, and municipal officials plans of municipalities, barrios, and sitios, including the boundaries thereof, roads, streams, etc., and the actual boundary of each private land holding with its area. Such data will greatly facilitate the collection of taxes. This work will therefore be very valuable for provinces and municipalities. The Director of Lands recommends that they be granted the same time for the payment of their portion of the cost of cadastral surveys as is granted to individuals. I concur in this recommendation.

PROVINCIAL ROAD SURVEYS.

There was surveyed 3,057 kilometers of road at a cost of ₱32,802.61.

The following table shows all provincial road surveys which have been completed up to date:

	Cost.	Stations.	Kilometers.
1909	₱59,367.35	30,013	3,285
1910	64,917.68	25,927	4,610
1911	17,388.29	6,489	7,998
1912	28,566.46	2,771	531
1913	32,802.61	18,129	3,057
Total.....	203,487.39	83,829	19,481

MUNICIPAL STREET SURVEYS.

One hundred and forty barrio and municipal street surveys were executed at a cost of ₱3,959.56. The Bureau of Lands now has on hand street surveys for most of the municipalities in the Islands and for a large number of the more important barrios and outlying villages as well. In all of these reference monuments for future surveys have been established.

INADEQUACY OF BUREAU OF LANDS QUARTERS.

The quarters of the Bureau of Lands are very seriously overcrowded. Forty per cent more space is needed, not only to secure reasonable efficiency from the working force, but to conserve health. The vault space has become so congested that a fire would cause very serious losses.

It is understood that the Court of Land Registration is also hampered for room.

In my opinion it would be to the interest of the Government to have both the Court of Land Registration and the Bureau of Lands in one building. If, as seems to be the case, such an arrangement is impracticable with the limited space afforded by the buildings now at the disposal of the Government, a new structure should be erected.

A very full and detailed account of the operations of the Bureau of Lands will be found in the annual report of its Director.

**METHOD OF OBTAINING THE ANNUAL REPORTS OF DIRECTORS
OF BUREAUS OF THE DEPARTMENT OF THE INTERIOR.**

The annual reports of the Directors of Bureaus of the Department of the Interior are printed and may be had upon application to these several officials.

Respectfully submitted.

Dean C. Worcester
Secretary of the Interior.

To the PHILIPPINE COMMISSION,
Manila, P. I.

